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W. LATHAM.  
PROJECTING KINETOSCOPE.

Application filed June 1, 1898.

(No Model.)

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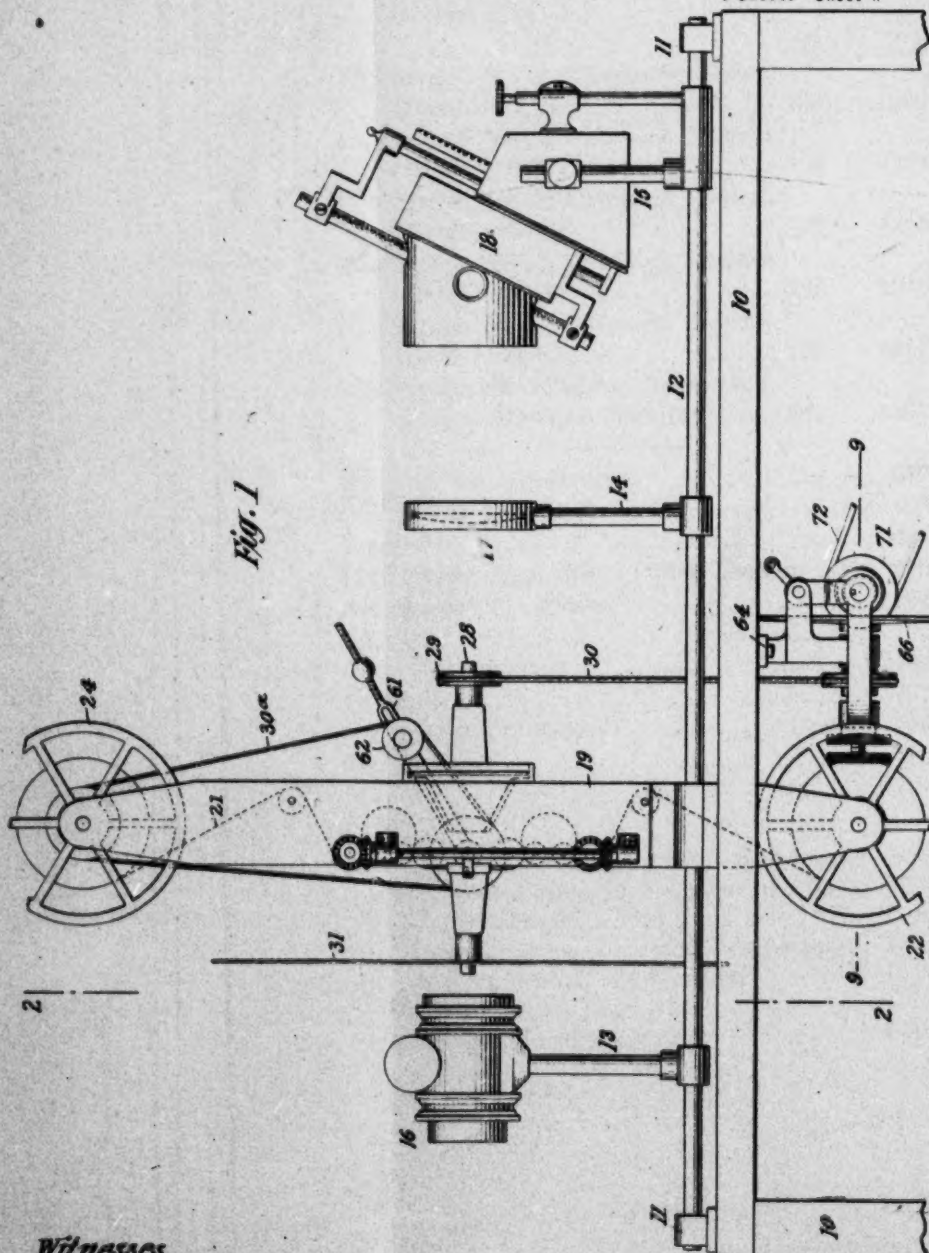
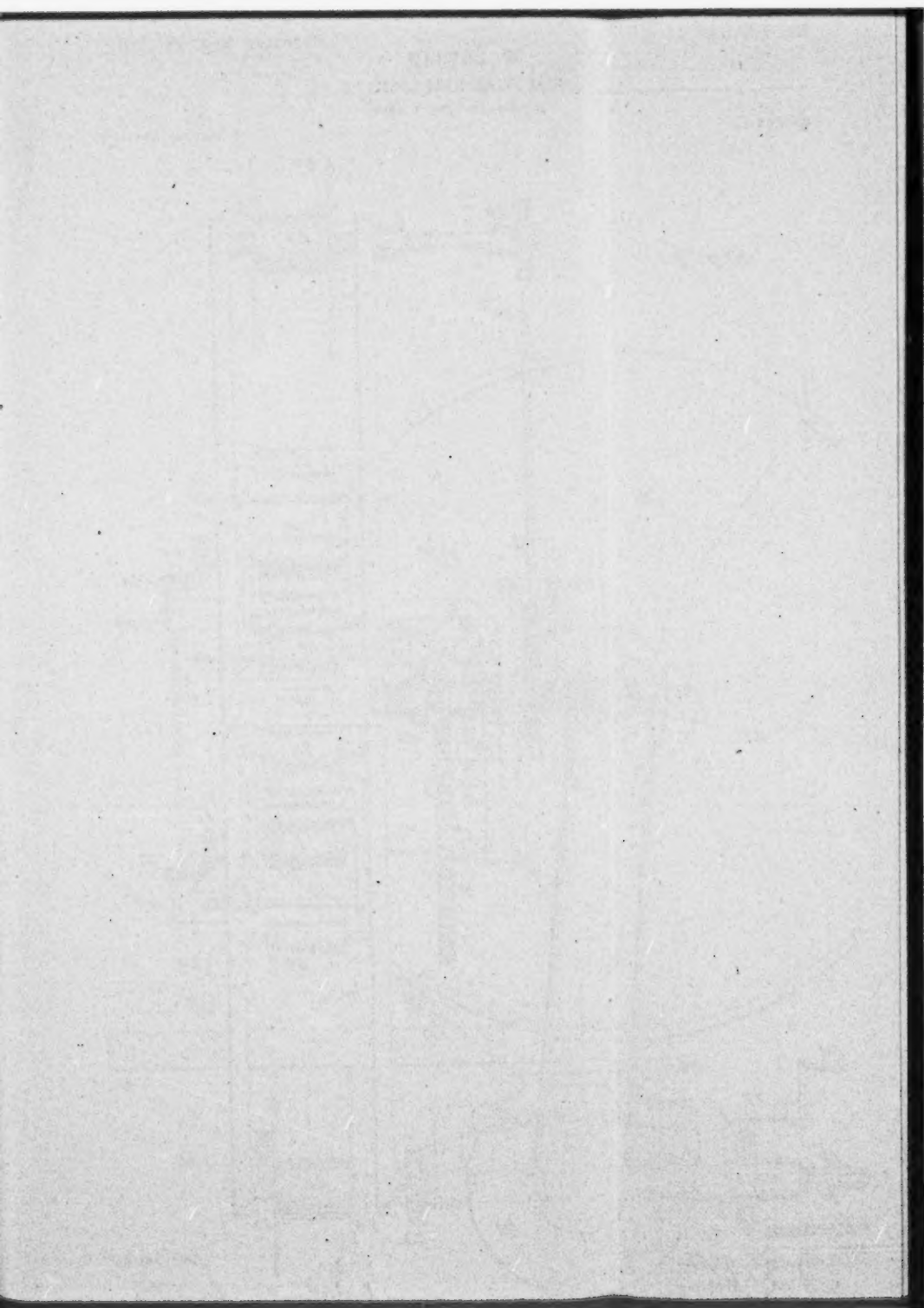


Fig. 1

Witnesses  
Raphael Hetter  
J. M. Brown

Inventor  
Woodville Latham

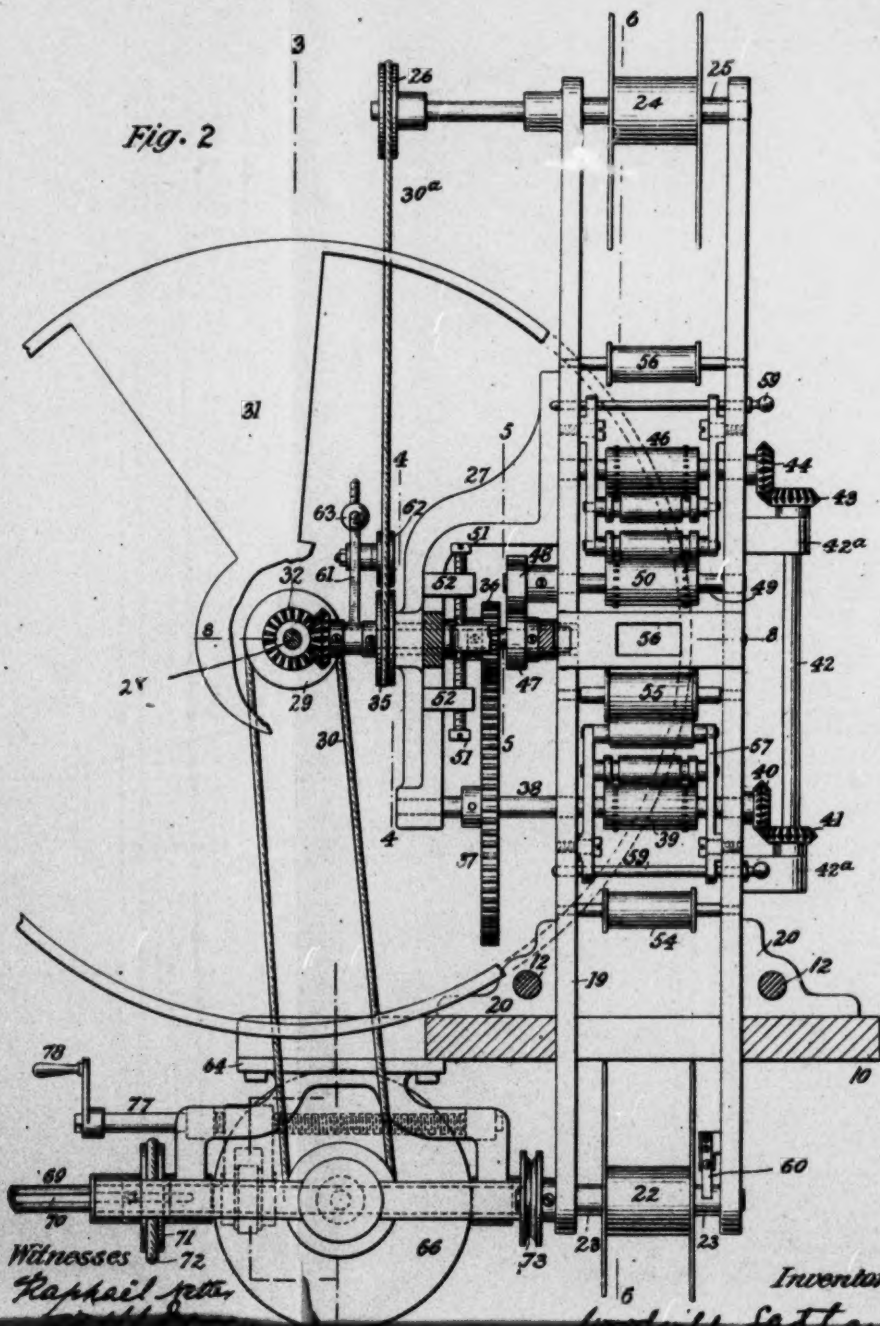


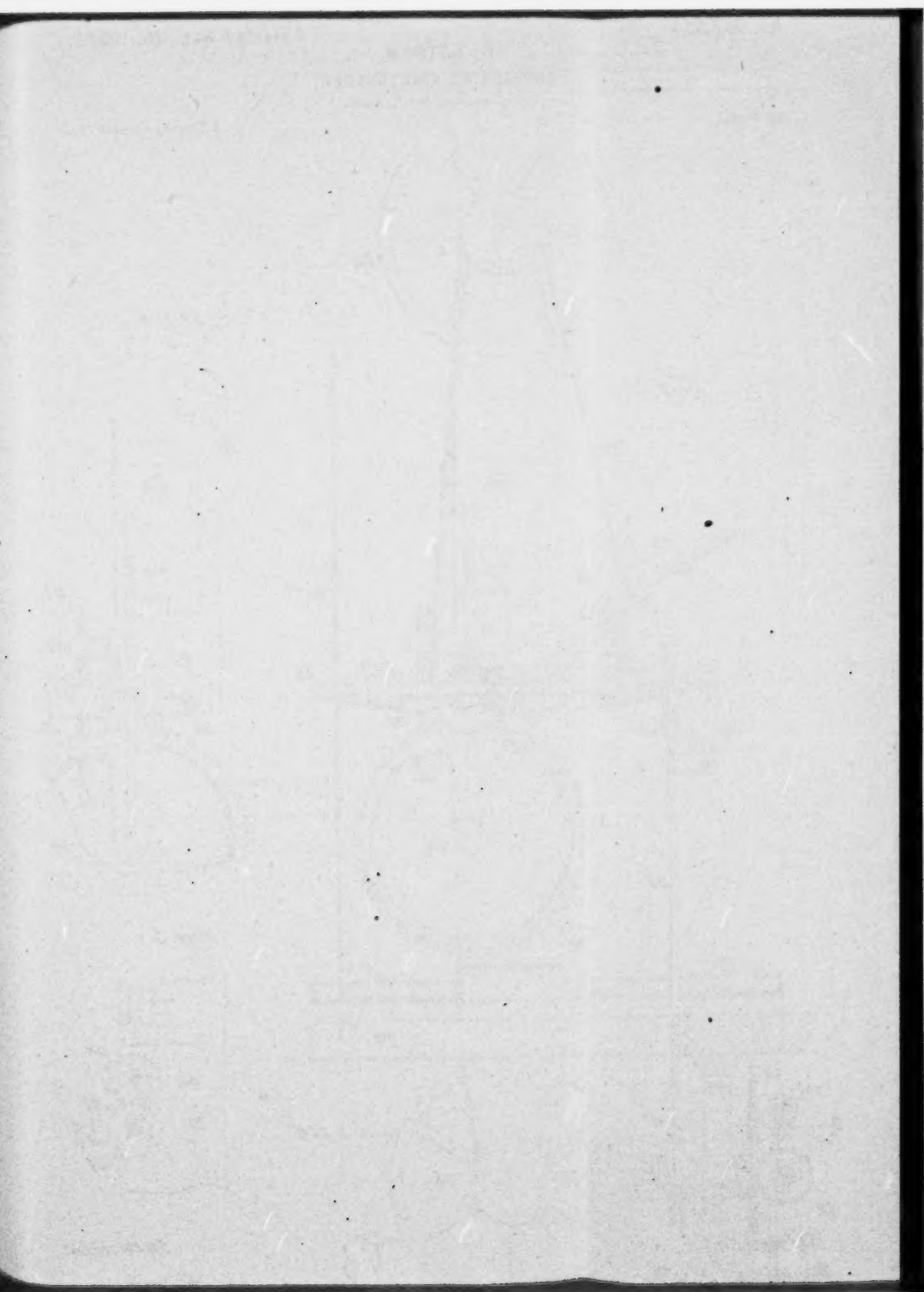
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PROJECTING KINETOSCOPE.

(Application filed June 1, 1896.)

(No Model.)

4 Sheets—Sheet 2.





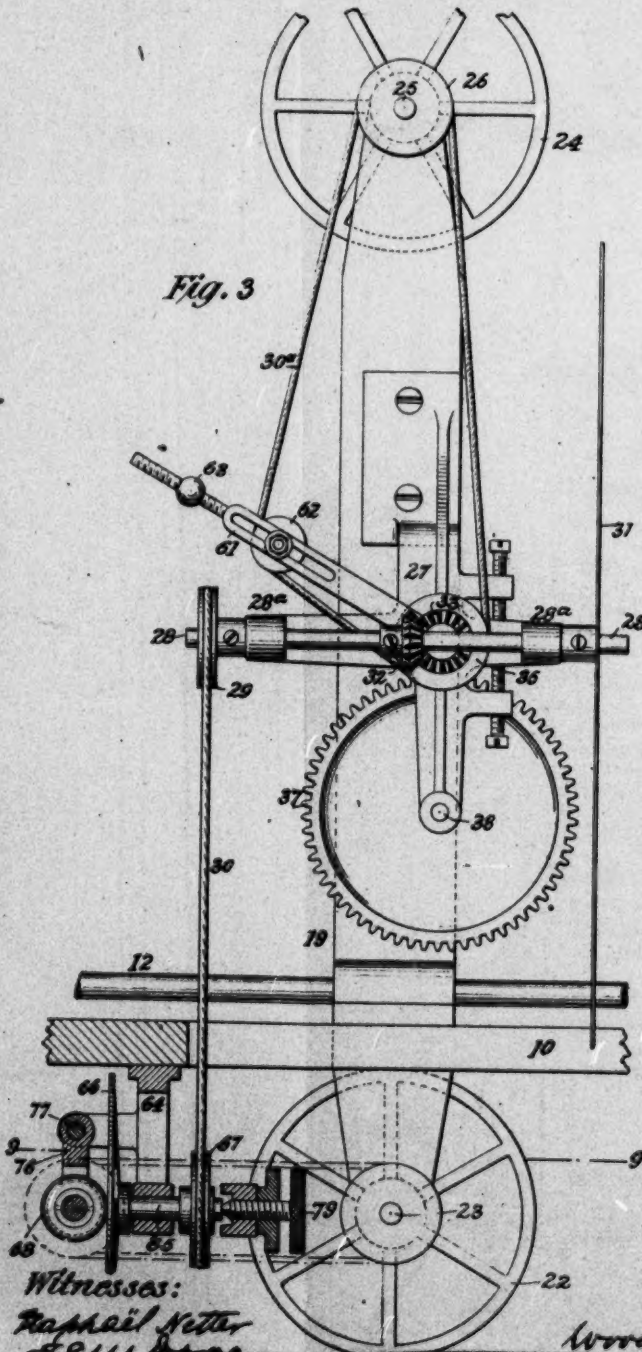


Fig. 3

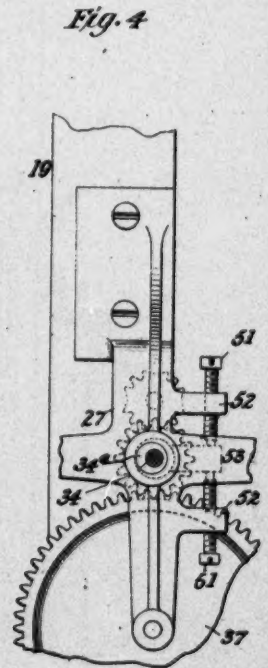
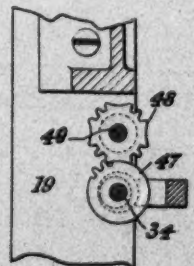


Fig. 4

Fig. 5



Witnesses:

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Erill

Inventor

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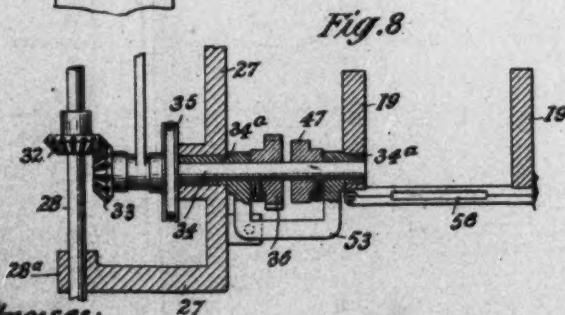
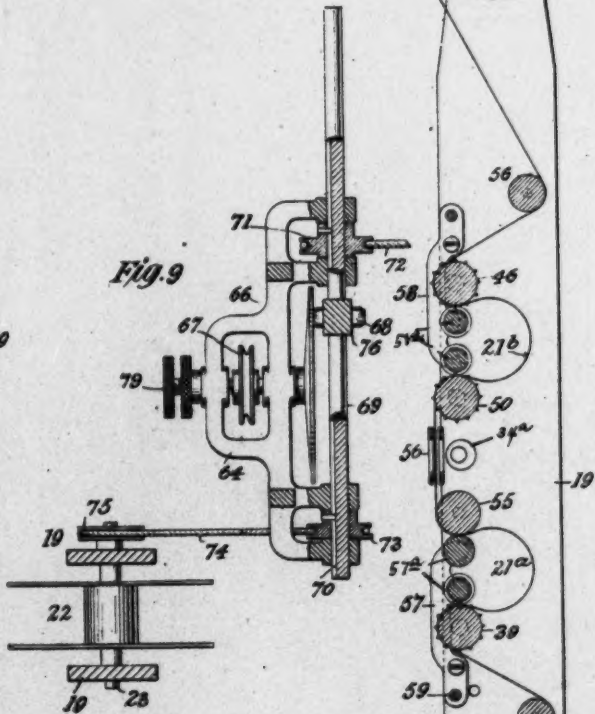
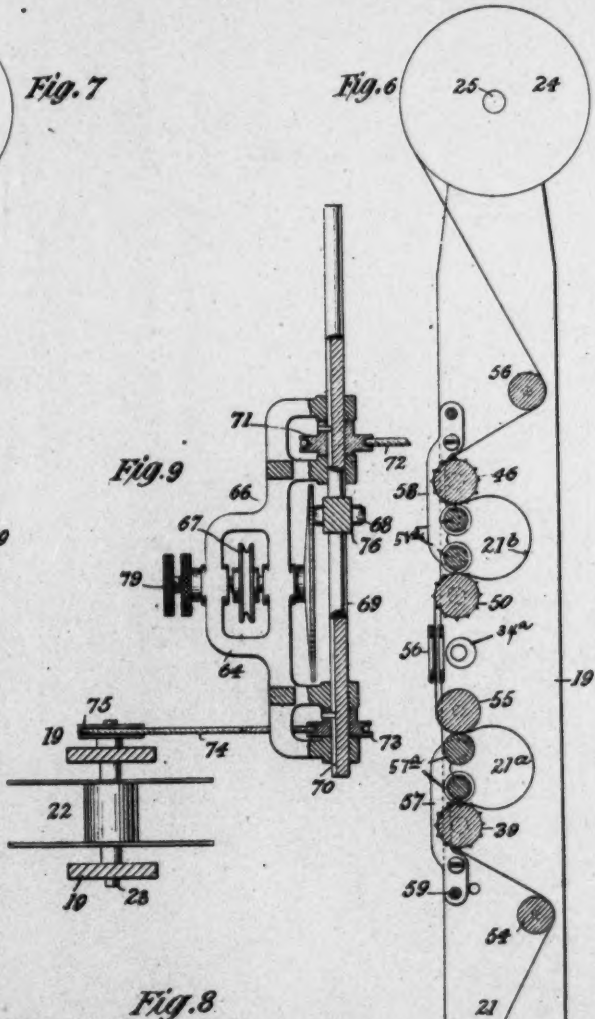
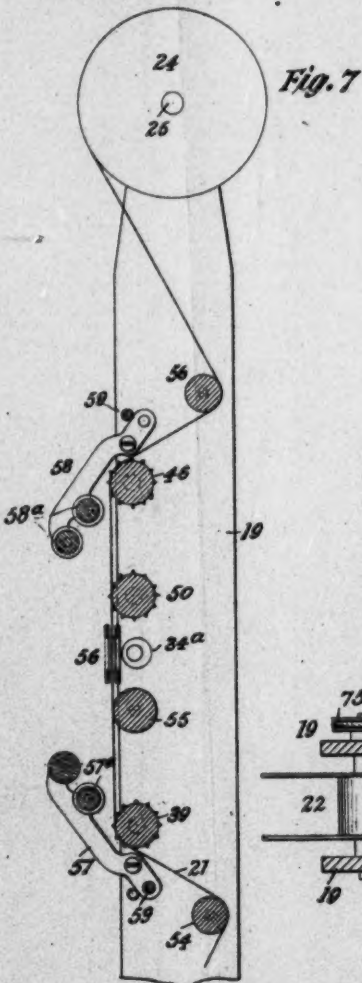


W. LATHAM.  
PROJECTING KINETOSCOPE.

(Application filed June 1, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:  
Raphael Peter

Inventor  
Woodville Latham

# UNITED STATES PATENT OFFICE.

1429

WOODVILLE LATHAM, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO E. & H. T. ANTHONY & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## PROJECTING-KINETOSCOPE.

SPECIFICATION forming part of Letters Patent No. 707,934, dated August 23, 1902.

Application filed June 1, 1896. Serial No. 693,747. (No model.)

*To all whom it may concern:*

Be it known that I, WOODVILLE LATHAM, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Projecting-Kinetoscopes, of which the following is a specification.

The present invention has reference to apparatus for projecting successively and at frequent intervals on a screen or other plane surface an extended series of photographs of moving objects, whereby the movement of the objects may be accurately exhibited.

The purpose of the invention is to provide an apparatus capable of continuously projecting or exhibiting upon a suitable surface a great number of pictures taken from moving objects and arranged upon a strip or film of great length, whereby each picture in the strip is brought to rest at the moment of projection, so that there is given to the eye an impression of objects in motion in a manner now well understood.

In an apparatus organized so that the picture-bearing strip is caused to move continuously and uninterruptedly across the optical axis a light of very high intensity is necessary to give satisfactory results; but a light of such power is not required for satisfactory projection by means of an apparatus embodying the principle of the present invention. The stoppage of each picture during its exposure permits the requisite quantity of light to pass through the condenser, the picture, and the objective to the screen or plane surface upon which the image is projected when the light employed is only of a moderately-high power.

The invention therefore consists in an apparatus for projecting successively a large number of pictures of moving objects, embodying, among other things, means for bringing each picture to rest at the moment of projection, means for reducing the strain the picture-film would otherwise suffer from the rapid interruption and renewal of its movement, and means for maintaining uniformity of movement of the film as it unwinds from the delivering-reel and as it winds upon the

receiving-reel, all as set forth in the claims 50 at the end of this specification.

In the accompanying drawings, which form part of this description, one form of apparatus embodying the invention is illustrated.

In the drawings like features are designated 55 in these several figures by like numerals of reference.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a cross-section on the line 2 2 of Fig. 1, partly broken away. Fig. 3 is a 60 section on broken line 3 3 of Fig. 2 looking toward the machine. Fig. 4 is a fragmentary section on line 4 4 of Fig. 2. Fig. 5 is a similar section on the line 5 5 of Fig. 2. Fig. 6 is a vertical section through the machine, showing the slack in the film, taken on the line 6 6 of Fig. 2. Fig. 7 is a similar section showing the devices for pressing the film into contact with the guide-rollers and drums thrown out of action. Fig. 8 is a sectional view on the line 8 8 of Fig. 2; and Fig. 9 is a section on the line 9 9 of Figs. 1 and 3 through the 70 power-transmitting appliances, showing the relation of the parts when winding back the film to the delivering-reel.

The several parts of the apparatus may be 75 mounted upon an optical bench (indicated in the drawings at 10) of any convenient design. At the ends of the bench 10 are the brackets 11, furnishing supports for the pair of longitudinal rods 12, upon which are mounted the standards 13 14 15, said standards being bifurcated to connect with the rods 12. The standard 13 supports a projecting-lens or an ordinary objective 16, which may be readily 85 adjusted to bring it in proper relation to the picture being projected, and standard 14 supports the condensing lens or lenses 17, while the standard 15 supports the lamp 18, which in this instance is shown as a focusing arc-lamp. The lamp 18 is preferably adjustable 90 on its support both vertically and laterally, and the standards for the condensing-lens and the lamp are so constructed that they may be adjusted longitudinally on the rods 12 so as to obtain the proper relative relation 95 between the lamp and the condenser and the condenser and the picture-strip. The mech-

anism for supporting and propelling the shutter and the picture-bearing strip is arranged above and below the optical bench 10 on standards 19, which extend vertically above the bench and for a short distance beneath and are braced by the brackets 20, which also furnish bearings for the longitudinal rods 12, as seen in Fig. 2. The picture-bearing strip or film, which may be of any desired length without in any way affecting the operation of the machine, is indicated at 21 in the several views. It is wound upon the delivering-reel 22, the shaft of which, 23, is journaled in the lower ends of the standards 19. The receiving-reel 24 is similarly mounted at the top of standards 19, its shaft 25 having bearings in said standards and being extended at one side beyond the standard to receive a pulley 26 for the belt 30\*, transmitting the motion of the driving-shaft to the receiving-reel. The function of these two reels is merely to support the bulk of the film while successive sections of it are subjected to the feeding and exposing mechanism. One of the reels supplies the film for exposure, and the other coils up and takes care of the film after exposure. The picture-bearing strip 21 is conducted through and over its guiding and controlling mechanism, mounted in standards 19, and secured to the hub of reel 24. The said strip when in the position it is caused to assume when the apparatus is projecting has two slack sections contiguous to the sprocketed feed-drums for the purposes presently explained.

To one side of the standards 19 there is fixed a bracket 27, in which the main shaft 28 is mounted in bearings 28\*. At one end of this shaft 28 there is keyed a pulley 29 to receive the driving-belt 30, and at its opposite end is fixed the hub of the shutter 31. On the main shaft 28 is keyed the bevel-gear 32, which meshes with a bevel-gear 33, fixed to the end of shaft 34, which revolves in bearings 34\* in bracket 27 and adjacent standard 19, the revolution of the shaft 28 being thereby transmitted to shaft 34. The shaft 34 has keyed to it a pulley 35, which receives the belt 30\*, transmitting motion to the receiving-reel, and it has also keyed to it the small gear-wheel 36, which engages with the large gear-wheel 37, keyed to shaft 38, having bearings in bracket 27 as well as in standards 19, said shaft carrying the toothed drum 39 and having keyed to its outer end a bevel-gear 40, which meshes with another bevel-gear 41, fixed to the upright shaft 42, supported in brackets 42\* on standard 19, and having at its upper end a bevel-gear 43, which meshes with a like gear 44 on the end of shaft 45, which carries a toothed drum 46 and has bearings in standards 19. By this mechanism the toothed drums 39 and 46 are caused to revolve continuously at a uniform rate when power is communicated to the main shaft 28. It is obvious that other forms of gearing may be employed

to drive said toothed drums 39 and 46 in unison. Shaft 34 has also keyed to it broken gear 47, Fig. 5, which is adapted to engage with a broken gear 48, fixed to shaft 49, having bearings and standards 19 and carrying a toothed drum 50. The gear 48 on the shaft of drum 50 is provided with a series of four toothed sections and a series of four plain sections, the surfaces of the latter being made to conform to the toothless portion of the circumference of the broken gear 47, so that while the gear 47 revolves continuously it intermeshes with gear 48 only momentarily as it completes each revolution, moving the gear 48 intermittently, and thus producing momentary stoppage of the drum 50 once with each complete revolution of shaft 34. At the moment of stoppage of the drum 50 the smooth surfaces of the gears are in sliding contact and remain so until the shaft 34 completing another revolution the teeth of the two gears again intermesh, revolving the drum 50 one-fourth of a revolution, and so on continuously, said drum momentarily stopping as the picture-bearing strip is moved through the apparatus the length of one picture, thus bringing each picture to rest at the moment of projection, and hence in a device of the construction described the period of rest of the film is four times greater than its period of movement. To prevent any vibration of the picture at the moment of projection, the smooth surfaces of the broken gears 47 and 48 should preferably be held in close sliding contact, and with this end in view the bearings 34\* 34\* (see Figs. 4, 5, and 8) of the shaft 34 are made eccentric, so that by means of the adjusting-screws 51 51, passing through lugs 52 on bracket 27 and bearing at their points on opposite sides of the yoke 53, connected to or formed with said bearings, the shaft 34 may be slightly raised or lowered, as required. This mode of adjustment has been found in practice to be efficient and to satisfactorily answer the purposes intended.

Because of the rapid interruption and resumption of the movement of the picture-film it is necessary to provide means for reducing the strain on the same to prevent its being ruptured by the teeth of the sprocket-drum 50, which actuates or feeds the film intermittently by engaging in holes at its edges, and it is also necessary or desirable to provide means for maintaining uniformity of tension of the film as it unwinds from the delivering-reel and winds upon the receiving-reel. The manner whereby these objects are effected will now be described.

The numerals 54, 55, and 56 indicate rollers for supporting and guiding the picture-bearing strip 21 and are arranged to freely revolve on fixed shafts supported in the standards 19. The picture-bearing strip or film 21, which has photographically produced upon it a series of pictures representing the successive stages or positions of the moving object or ob-

jects to be reproduced, is conducted from the delivering-reel 22 over the guide-roller 54, toothed or sprocketed drum 39, guide-roller 55, past exposure-window 56<sup>a</sup>, which is attached to the standards 19 in the line of the optical axis of the apparatus, toothed drums 50 and 46, and guide-roller 56 to the receiving-reel 24, to the hub of which its end is secured. The strip or film is perforated at regular intervals along its lateral edges to correspond exactly with the sprocket-like teeth arranged on the circumference of the drums 39, 46, and 50, near their ends, respectively.

In Fig. 6 the parts of the mechanism for controlling and guiding the picture-bearing strip or film, as well as the strip itself, are in position for projecting, and in Fig. 7 the parts are shown in the position they are made to assume when the picture-bearing strip is being wound back from the receiving to the delivering reel.

To secure the necessary engagement between the picture-bearing strip 21 and the feeding-drums 39, 46, and 50, so that the strip may be fed or moved with greater accuracy and certainty, the frames 57 and 58, pivoted, as shown, to the standards 19, are provided, and they are supplied with the freely-revolving rollers 57<sup>a</sup> and 58<sup>a</sup>. (See Fig. 7.) The rollers 58<sup>a</sup>, carried by frame 58, are adapted to cooperate with the toothed drums 46 and 50, and they have circumferentially near their ends grooves, as shown in Fig. 2, to receive the teeth or sprockets of said feed-drums when the frame is fixed in the position it occupies when the apparatus is projecting, and the rollers 57<sup>a</sup> of frame 57, one of which cooperates with toothed drum 39, are similarly constructed for the same reason, the upper roller 57<sup>a</sup>, which coacts with the toothless guide-roller 55, being grooveless on its circumference. The frames 57 58 are held in the two positions which they are adapted to occupy, as in Fig. 6 when projecting or as in Fig. 7 when the picture-bearing strip is released so as to be wound back from the upper to the lower reel by the removable rods which pass through suitable holes in the standards 19 and engage with the ends of the frames, as shown in Figs. 6 and 7. When in the position shown in Fig. 6, the rollers carried by frame 57 are between the sprocket-drum 39 and the guide-roller 55, while the rollers carried by frame 58 are between the sprocket-drums 46 and 50. Within the planes occupied by the two sets of rollers 57<sup>a</sup> and 58<sup>a</sup> when the apparatus is adjusted for projecting—i. e., when in operation—the film or picture-bearing strip 21 is thrown out in the form of a loop, as shown at 21<sup>a</sup> 21<sup>b</sup>, one of these slack portions being at one time above window 56<sup>a</sup> and the other at another time above the same. The extent of each of said slack portions is preferably that of the height of a picture or slightly more. It will be understood from the description that follows that the loops of slack below and above the ex-

posure-window are alternately thrown out and then taken up by the operation of the sprocket-drums, respectively, and that they produce and take up the slack by their own positive action entirely independent of the film-supporting reels at the extremes of the apparatus. In the operation of the machine the rollers 57<sup>a</sup> 58<sup>a</sup> hold the strip in proper contact with the respective feed-drums and guide-roller 55, as will be understood from Fig. 6, and insure proper contact between the strip and the respective drums. The picture-bearing strip is carried through the apparatus with great rapidity, and because of the rapid interruption and resumption of its movement it would not be possible for the strip to withstand the strain brought upon it for any considerable time if there were not provision made for the slacks in the film, as just explained. The instant each picture of the strip is brought in the line of the optical axis the toothless surfaces of the broken gears 47 48 are in sliding contact, their respective cogs being out of engagement, with the effect of causing stoppage of revolution of the toothed drum 50 and consequent momentary stoppage of the film between said toothed drum 50 and the toothless roller 55 beneath the optical axis; but the revolution of shaft 38 being continuous the toothed drums 39 and 46, which latter is positively geared from said shaft, as explained, also revolve continuously, taking up the slack 21<sup>b</sup> between toothed drums 46 and 50 and also replacing the slack 21<sup>a</sup> between toothed drum 39 and roller 55, thus restoring the slack 21<sup>a</sup>, to be again taken up when the broken gears 47 48 again momentarily intermesh. It will thus be seen that as the slack 21<sup>b</sup> is taken up at the moment of stoppage of the toothed drum 50 the slack 21<sup>a</sup> is simultaneously being restored, and this action is continuous and positive and independent of the other parts of the machine while the operation of projection is going on. There is therefore but little, if any, additional strain on the film incident to the rapid interruption and resumption of its movement through the apparatus.

The construction and operation of the devices which produce and take up the loops of slack film and also those which intermittently feed or, so to speak, "jerk" the film from picture to picture across the exposure-window or axis of the lens form an exceedingly important part of this invention. It will be noted that they are entirely separate and distinct from the reels which support the weight of the bulk of the film and which are consequently relatively heavy, so that the length and consequent weight of the film may be indefinitely extended without affecting the operation of the machine. The intermittently-feeding devices, on the other hand, which comprise only the broken gear 48 and the feed-drum 50 with its shaft, are very light, and consequently have very little

inertia, and since also the small portion of the film which this part of the apparatus actuated has scarcely any weight these parts will instantly stop and start with great rapidity and with a minimum of strain or jar upon the mechanism and with the least possible wear on the holes for the sprocket-teeth in the film, and in order that the slack may be formed and the intermittent movements across the optical axis effected with accuracy and certainty it is desirable, although not essential, that the rollers which effect these movements be provided with the sprocket-teeth shown or their equivalent, so that they may positively engage with the film and positively move it without the possibility of any slipping, which is apt to occur when frictional contact alone is relied on, because such slipping will preclude proper registration between the picture and the optical axis. In order that these parts may operate as described, it is essential that the loop of slack film be maintained at all times ready for the intermittently-acting device and also that the slack-manipulating and the intermittently-moving devices be positively driven by mechanism which will absolutely insure the presence of the slack and the accurate movement of the film. The reason these parts and their arrangement and method of operation are such important and valuable features of the invention is because their action is necessarily exceedingly rapid, and if the intermittently-feeding mechanism were heavy, so as to have much inertia, or if any considerable portion of the film or either of the reels which support it were stopped and started at each transition from picture to picture there would be such strain brought to bear on the sprocket-holes in the film as would speedily tear it adjacent to such holes, thus ruining it, and since these films are expensive, a good one being capable of making large profits for its owner, any means which will prolong their life is of great value in this art.

Another feature peculiar to my invention and one which distinguishes it from certain other apparatus is the important fact that the intermittent feed devices and the slack-former being entirely separate and distinct from the other parts are alone relied upon for securing accurate registration of the successive pictures with the axis of the projecting-lens. The supply and colling reels at the extremes of the machine may operate with only substantial accuracy and still the results will be satisfactory, because they have nothing to do except to properly support and take care of the film, supplying it at one side and taking it away at the other. The intermittent feed devices and the slack-producing devices, on the other hand, which lie between the two reels and immediately adjacent to the exposure-window, control and manipulate that special and limited part of the film which is at that instant relied upon for the desired results, and it is a comparatively

easy matter to accomplish exactness in operation when this part of the mechanism is separate and distinct from the other.

Uniformity of tension of the film as it unwinds from the delivering-reel, to prevent the film from buckling and insure its proper entrance to the apparatus, is secured by any suitable friction device applied to the shaft 23 of said reel. In the drawings is shown a metallic strap with an adjusting-screw for this purpose. This friction device is indicated by 60.

The rate of winding of the picture-bearing strip upon the receiving-reel is regulated by automatically controlling the revolution of the reel by means of the idler 61, which is shown loosely journaled on shaft 34. The idler is provided with a slot, as shown, in which is adjustably fixed roller 62, and around this roller is passed the belt 30. By adjusting roller 62 in the slot the pressure on the belt is varied. As the reel 24 becomes larger by the winding of the film thereon the idler may be manipulated to loosen the belt 30 and to cause it to slip on pulley 26 of the reel-shaft. This slipping is or may be a continuous one from beginning to end of the operation of the machine, but it is such a gentle slipping that no appreciable heat is produced and no appreciable wearing of the belt. The outer end of the idler is screw-threaded and provided with a weight 63, by means of which a nicer adjustment of the pressure exerted by the idler is obtained. By this means the rate of revolution of the receiving-reel is automatically maintained in proper correspondence with that of the feed-drum 46.

The shutter 31, carried by the shaft 28, has but a small solid section. Its use is to cover the film during the interval of movement of each picture.

The power may be imparted to the main shaft 28 through a friction regulating and controlling appliance attached to the bottom of the optical bench by means of the bracket 64. In this bracket is journaled the shaft 65, carrying at one end a friction-plate 66 and having keyed to its opposite end a pulley 67, adapted to receive the belt 30, which passes over pulley 29 on the main shaft 28. The friction-plate 66 cooperates with a friction-roller 68, keyed to shaft 69, the said shaft having a longitudinal groove 70 and being provided with pulley 71, receiving the belt 72 to the motor, and also with pulley 73, adapted to receive belt 74, (see Fig. 9,) which is made use of to transmit the power of the motor to the delivering-reel when winding back the film from the receiving-reel, the shaft of said reel being provided with pulley 75 to receive said belt. The pulleys 71 and 73 are connected to shaft 69 by feathers entering the groove of said shaft, as shown in Fig. 9, so that while these pulleys cannot turn on the shaft the shaft can be moved through the hubs of the pulleys, which is done when ad-

justing the friction-roller 68 with relation to the friction-plate 66. The hub of the friction-roller is connected by an arm 76, having a screw-threaded sleeve through which passes screw-threaded shaft 77, supported in bracket 64 and adapted to be turned by crank 78 to permit the adjustment of the friction-roller toward or from the center of the friction-plate to increase or diminish the rate of speed of the friction-plate shaft 65 in a manner well understood, the rate of speed of the main shaft 28, connected to the friction-plate shaft 65 through belt 30, being thus determined and regulated as desired. The pressure of the friction-plate 66 against the friction-roller 68 is regulated by means of the milled-head screw 79, the point of which enters a depression in the end of the friction-plate shaft, as shown in Fig. 3. In Fig. 9 the friction-speed-regulating appliances are shown adjusted for winding back the film from the receiving and delivering reel, the friction-roller 68 having been shifted across the center of the friction-plate so as to reverse the revolution of the shaft 65. When winding back the film, the pulleys 73 and 75 are connected by belt 74 and the frames 57 58 are swung back, as shown in Fig. 7, so as to relieve the film of all binding tension.

30 The reels may be of size suitable to carry any length of picture-bearing strip that may be desired.

In operating the apparatus power is transmitted from the motor (not shown) by belt 72 and through friction-plate shaft by belt 30 to main shaft 28 of the apparatus. The operation of the gearing and the manner in which the teeth of the feed-drums engage the perforations in the edges of the picture-bearing strip and move it from the delivering to the receiving reel and across the opening 56 in the line of the optical axis of the apparatus, with a momentary stoppage of the film crossing the optical axis as the central portion of each picture is brought in the line of the optical axis, will all be understood from the preceding description. Whenever the central portion of a picture is in the line of the optical axis and the picture comes to rest, the light will pass simultaneously through the condensing-lens, through the picture, and through the objective outward to the screen or other plane surface. The light of course must be so adjusted as to cover the whole of the picture. The pictures are projected successively with such great rapidity, each succeeding picture showing a slightly-advanced stage of motion, that the effect on the eye of the observer is exactly the same as if a moving object or objects were being looked at directly.

It is to be understood that many of the mere details of the apparatus herein described may be varied without departing from the principle of my invention—as, for example, while the mechanism shown and described

manner that there is a real stoppage of the film as each picture is presented in the line of the optical axis is the form and character preferred by me, it is obvious that the principle of the invention may be retained with differently-organized gearing and the employment of other appliances than those shown and described.

Having described my invention, I claim as new—

1. The combination with devices for supporting the bulk of a flexible film before and after exposure, of feeding mechanisms located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a predetermined supply of slack, and the other adapted to intermittently feed the slack across the exposure-window.

2. The combination with devices for supporting the bulk of the film before and after exposure, of feeding mechanisms located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a predetermined supply of slack, and the other adapted to intermittently feed the slack film across the exposure-window, and constructed also to cause the intervals of rest of the film to exceed its intervals of movement.

3. The combination with devices which support the bulk of the film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices, located between them and at opposite sides of the exposure-window, and which respectively engage with and accurately and uniformly feed the film, and which respectively produce and take up slack in it, and an intermittently-acting device located between said last-named devices which intermittently moves the slackened part of the film across the exposure-window.

4. The combination with devices which support the bulk of a flexible strip or film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices and which engage the film and accurately compel its movement, and which feed the film by uniform and continuous rotary action, and an intermittently-acting device located between said last-named devices and which moves the slackened part of the film picture by picture across the exposure-window and causes its period of rest to exceed its period of movement.

5. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices and located between them at opposite sides of the

and accurately insure its feeding, which last-named devices respectively produce and take up slack in the film, and an intermittently-acting device provided with teeth which engage in holes in the film whereby it feeds the film across the exposure-opening.

6. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of a positively-driven device entirely disconnected from the said film-supporting devices located between the film-supplying device and the exposure-window and which produces a loop of slack film, and an intermittently-acting device which engages with the film and feeds the slackened part of it across the exposure-window, and causes its period of rest to exceed its period of movement.

7. The combination with devices adapted to support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively-driven toothed rotary devices located between and entirely disconnected from said supporting devices and at opposite sides of the exposure-window, said toothed devices being adapted to carry and feed the flexible film by the engagement of their teeth with equally-spaced holes made in the edges of the film and to respectively produce and take up slack in the film, and an intermittently-acting rotary feeding device also provided with teeth which engage with the holes in the film, whereby the film is intermittently fed across the exposure-opening.

8. The combination with two reels which support the bulk of a flexible film, one of which supplies it for exposure and the other receives it after exposure, of a positively-driven device separate and distinct from the said reels and located between the supply-reel and the exposure-window and which produces a loop of slack film, and an intermittently-acting device likewise positively driven which moves the film picture by picture into the optical axis at the exposure-window and causes each picture to remain momentarily at rest in the optical axis.

9. The combination with two rotary reels which support the bulk of a flexible film, one of which supplies the film for exposure and the other coils it up after exposure, of two rotary feeding mechanisms located between said reels and separate and distinct from them, one constructed to feed the film intermittently and cause it to move picture by picture across the axis of the lens and to come to rest in said axis, the other constructed to feed the film continuously and uniformly and thus provide a constant supply of slack film and gearing positively connecting the said two feeding mechanisms for maintaining a fixed relation between them.

10. The combination with two rotary reels adapted to support the bulk of a flexible film, one of which supplies the film for exposure and the other receives it after exposure, of two toothed rotary feeding-rollers located between said film-supporting reels and separate and distinct therefrom and adapted to carry and feed the film by the engagement of their teeth with equally-spaced holes in the edges of the film, actuating mechanism and connecting-gearing between said feeding-rollers which positively actuates one of the feeding-rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion and which positively actuates also the other feeding-roller continuously and thus provides a constant supply of slack film.

11. The combination with the main shaft provided with a broken gear mounted in eccentric bearings and a feed-drum whose shaft is provided with a broken gear which meshes with the first-named broken gear, of means for adjusting said bearings to regulate the contact between said gears.

Signed at New York, in the county and State of New York, this 25th day of May, 1896.

WOODVILLE LATHAM.

Witnesses:

J. E. M. BOWEN,  
ALEXIS C. SMITH.

**Plaintiff's Exhibit B.**

2173

**ASSIGNMENT.**

WHEREAS, Woodville Latham of New York, in the County and State of New York, made application for letters patent of the United States on June 1st, 1896, for improvements in Projecting Kinetoscopes; and

WHEREAS, letters patent of the United States issued on said application to E. & H. T. Anthony & Co. of New York, a corporation organized under the laws of the State of New York, by virtue of an assignment in writing, duly executed, delivered and recorded in the United States Patent Office, which said letters patent are numbered 707,934, and bear date the 26th day of August, in the year 1902; and

2174

WHEREAS, the said E. & H. T. Anthony & Co. is now sole owner of said patent and of all rights under the same; and

WHEREAS, The Anthony & Scovill Company, a corporation organized under the laws of the State of New York, is desirous of acquiring the entire interest in the same:

2175

NOW, THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of ten dollars to the said E. & H. T. Anthony & Co. in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, the said E. & H. T. Anthony & Co. has sold, assigned and transferred, and by these presents does sell, assign and transfer unto the said The Anthony & Scovill Company the whole right, title and interest in and to the said improvement in

*Plaintiff's Exhibit B.*

2176

Projecting Kinetoscope and in and to the letters patent therefor aforesaid; the same to be held and enjoyed by the said The Anthony & Scovill Company for its own use and behoof, and for the use and behoof of its successors and assigns, to the full end of the term for which said letters patent are or may be granted, as fully and entirely as the same would have been held and enjoyed by the said E. & H. T. Anthony & Co. had this assignment and sale not been made.

2177

IN TESTIMONY WHEREOF the said E. & H. T. Anthony & Co. has hereunto signed by the hand of its President duly authorized so to do, and caused its corporate seal to be affixed hereto this 5th day of February, 1908.

E. & H. T. ANTHONY & CO.,

(Seal)

By R. A. ANTHONY, President.

Attest:

C. B. STANBERRY,

Secy.

2178

State of New York,     }  
County of New York,   } ss.:

I, Walter L. Pate, a notary public in and for the County of New York, do hereby certify that Richard A. Anthony personally appeared before me and, being by me duly sworn, did depose and say that he is the President of the corporation E. & H. T. Anthony & Co., described in the writing above, and that said writing was signed by him by authority of said corporation and in its behalf, and the said

*Plaintiff's Exhibit C.*

2179

Richard A. Anthony acknowledged said writing to be the act and deed of said corporation.

Given under my hand and seal this 6th day of February, 1908.

WALTER L. PATE,  
Notary Public,  
Kings County.

(Seal)

Certificate filed in N. Y. County.

2180

**Plaintiff's Exhibit C.****ASSIGNMENT.**

WHEREAS, Woodville Latham of New York, in the County and State of New York, did obtain letters patent of the United States for an improvement in Apparatus for Photographing Objects in Motion and for Projecting Pictures, which letters patent are numbered 600,113, and bear date the 1st day of March, 1898, and

2181

WHEREAS, said letters patent No. 600,113, and all right, title and interest therein and thereunder were assigned and transferred by an instrument in writing duly recorded in the United States Patent Office, to The Anthony & Scovill Company, a corporation organized under the laws of the State of New York, and

WHEREAS, Woodville Latham of New York, in the County and State of New York, made application for letters patent of the United States on June 1st, 1896, for improvements in Projecting Kinetoscopes, and

2182

WHEREAS, letters patent of the United States, issued on said application to E. & H. T. Anthony & Co. of New York, a corporation organized under the laws of the State of New York, by virtue of an assignment in writing duly executed, delivered and recorded in the United States Patent Office, which said letters patent are numbered 707,934, and bear date the 26th day of August, in the year 1902, and

2183

WHEREAS, said letters patent No. 707,934, and all right, title and interest therein and thereunder were assigned and transferred by an instrument in writing, of even date herewith, to the Anthony & Scovill Company, a corporation organized under the laws of the State of New York, and

2184

WHEREAS, the American Mutoscope and Biograph Company, a corporation organized under the laws of the State of New Jersey, and having a place of business in the City, County and State of New York, is desirous of acquiring the entire interest in and under both the said letters patent:

NOW, THEREFORE to all whom it may concern, be it known that for and in consideration of the sum of ten dollars to the said The Anthony & Scovill Company in hand paid, receipt of which is hereby acknowledged, and for other good and valuable consideration, the said The Anthony & Scovill Company has sold, assigned and transferred, and by these presents does sell, assign and transfer unto the said American Mutoscope and Biograph Company the whole right, title and interest in and to the said improvement in Apparatus for Photographing Objects in Motion and for Pro-

jecting Pictures and said improvements in Projecting Kinetoscopes and in and to the said letters patent therefor; the same to be held and enjoyed by the said American Mutoscope & Biograph Company for its own use and behoof; and for the use and behoof of its successors and assigns, to the full end of the terms for which said letters patent are or may be granted, as fully and entirely as the same would have been held and enjoyed by the said The Anthony & Scovill Company had this assignment and sale not been made.

2186

IN TESTIMONY WHEREOF, The Anthony & Scovill Company has hereunto signed by the hand of its President, duly authorized so to do and caused to be affixed its corporate seal, this 5th day of February, 1908.

THE ANTHONY & SCOVILL CO.

(Seal)

THOMAS W. STEPHENS, Pt.

A. C. LAMONTLEY,  
Secretary.

2187

State of New York, }  
County of New York, } ss.:

I, Francis L. Noble, a notary public in and for the State of New York, and County of Kings, do hereby certify that Thomas W. Stephens personally appeared before me and being by me duly sworn did depose and say, that he is the President of The Anthony & Scovill Company, the corporation described in the writing above, bearing date the 5th day of February, 1908, and authorized by

2188

*Plaintiff's Exhibit D.*

said corporation to execute and acknowledge deeds other writings of said corporation, and that the seal affixed to said writing is the corporate seal of said corporation, and that said writing was signed and sealed by him in behalf of said corporation, and the said Thomas W. Stephens acknowledged said writing to be the act and deed of said corporation.

Given under my hand and seal this 20th day of February, 1908.

2189

(Seal)

FRANCIS L. NOBLE,  
Notary Public, Kings Co.,  
Certificate filed in N. Y. Co.

**Plaintiff's Exhibit D.****ASSIGNMENT.**

2190

WHEREAS, the AMERICAN MUTOSCOPE & BIOGRAPH COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and having an office in New York City, is possessed of the entire right, title and interest in and to the following named inventions and letters patent of the United States therefor, namely:

Patent No. 629,063, granted to American Mutoscope Company as assignee of Herman Casler, dated July 18th, 1899, for KINETOGRAPHIC CAMERA.

Patent No. 707,334, granted to E. & H. T. Anthony & Co., as assignee by mesne assignments of Woodville Latham, dated August 26, 1902, for PROJECTING KINETOSCOPE, and

Patent No. 722,382, granted to American Mutoscope & Biograph Company as assignee of John A. Pross, dated March 10, 1903, for ANIMATED PICTURE APPARATUS, and

WHEREAS, THE MOTION PICTURE PATENTS COMPANY, a corporation organized and existing under the laws of the State of New Jersey, having an office at Jersey City, in said State, desires to acquire the entire right, title and interest which the said American Mutoscope & Biograph Company has in and to the aforesaid inventions and in and to the aforesaid letters patent, and to acquire the right to sue for past infringement of the aforesaid letters patent.

2192

NOW, THEREFORE, THIS INDENTURE WITNESSETH that for and in consideration of the sum of one dollar, and of other good and valuable considerations, the receipt whereof is hereby acknowledged, the said American Mutoscope & Biograph Company, in and by these presents does, assign, transfer and set over unto the said Motion Picture Patents Company, and its successors in business, the entire right, title and interest in and to the said inventions and the said letters patent of the United States, and the right to sue for and recover damages and profits for past infringement of the said letters patent and each of them, and all right, title and interest in and to any reissue or reissues, or extension or extensions, of said letters patent, the same to be held and enjoyed by the said Motion Picture Patents Company and its successors in business, to the full end of the term or terms for which the said letters patent of the United States are granted, reissued or extended, as fully and entirely as the same would have been held and en-

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*Plaintiff's Exhibit D.*

joyed by the said American Mutoscope & Biograph Company if this assignment and sale had not been made.

The American Mutoscope & Biograph Company hereby covenants that it has full right to convey the interest herein assigned, and that it has not executed and will not execute any agreement in conflict herewith.

2195

IN WITNESS WHEREOF, the AMERICAN MUTOSCOPE & BIOGRAPH COMPANY, has caused its corporate seal to be affixed hereto and its name to be subscribed hereto by its President, this 30th day of December, 1908.

AMERICAN MUTOSCOPE &  
BIOGRAPH COMPANY,  
By J. J. KENNEDY,  
President.

Attest:

H. H. BRUENNER,  
Secretary.

2196

AMERICAN MUTOSCOPE &  
BIOGRAPH CO., INCORPOR-  
ATED 1896. NEW JERSEY.

State of New York, }  
County of New York, } ss.:

On this 12th day of January, 1909, before me personally came HERMAN H. BRUENNER, the Secretary of the AMERICAN MUTOSCOPE & BIOGRAPH COMPANY, with whom I am per-

sonally acquainted, who being by me duly sworn, deposed and said that he resides in the Borough of Brooklyn, City of New York, and is the Secretary of the AMERICAN MUTOSCOPE & BIOGRAPH COMPANY, the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of the said company; that the seal affixed to the said instrument is said corporate seal and is so affixed by order of the Board of Directors of the said company; and that he attested the same by subscribing his name to the said instrument as Secretary of the said company by like order.

2198

HERMAN H. BRUENNER.

Sworn to and subscribed before me this  
12th day of January, 1909.

CLINTON DEFOREST GANSE,  
Notary Public,  
New York Co., N. Y.

Certificate filed in New York County.

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2200

**Plaintiff's Exhibit E.**

IN THE

DISTRICT COURT OF THE UNITED STATES,  
FOR THE SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS COM-  
PANY,  
Complainant,

vs.

2201

UNIVERSAL FILM MANUFACTUR-  
ING COMPANY, UNIVERSAL FILM  
EXCHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Defendants.

In Equity  
No. 12-194.  
On Latham  
Patent No.  
707,934.

**Stipulation.**

IT IS HEREBY STIPULATED AND AGREED  
by and between the solicitors for the respective  
parties, as follows:

2202

(1) That Printed Patent Office copies of United States Letters Patent and blue books or other printed copies of Letters Patent granted by foreign countries may be offered in evidence by either party hereto with the same force and effect as the originals or copies thereof duly certified by the United States Commissioner of Patents, subject to correction should error appear.

(2) That the moving picture projecting machine described and illustrated in United States patent to Thomas Armat No. 673,992, May 14th, 1901, and particularly, in Figs. 2 and 13 of said patent, correctly illustrates and describes a ma-

2203

chine which was publicly exhibited by Thomas Armat at the Atlanta Exposition at Atlanta, Georgia, during the months of September and October, 1895; that the said machine was originally constructed for said Thomas Armat and Charles Francis Jenkins of Washington, D. C., without the sprocket wheel designated by the letter E in the said patent No. 673,992, but with a pivoted spring-actuated arm bearing on the under side of the film between the exposure opening and the tension device and the roll of unexposed film, substantially as shown in Defendants' Exhibit, "Photograph of Feeding Mechanism-Atlanta Machine," and that such machine as thus constructed was sent to Atlanta, Georgia, on or about September 5th, 1895, and that subsequent to its arrival at the latter place, this machine was modified by Mr. Armat by the introduction of a sprocket wheel such as is designated by the letter E in the patent No. 673,992 in place of the spring-actuated arm of the said exhibit, and that the application for said United States Patent No. 673,992 was filed on February 19, 1896.

2204

(3) That the Prague Amusement Company, Inc., defendant herein, is engaged in business in the exhibition of motion pictures in New York City, and that it conducts a motion picture theatre known as the 72nd Street Playhouse, at No. 350 East 72nd Street, in the Borough of Manhattan, City of New York; that at said 72nd Street Playhouse, said Prague Amusement Company uses one or more motion picture projecting machines commonly known as the "Simplex," and made and sold by the Precision Machine Company, Inc., the construction of which machines is correctly represented in the annexed four sheets of drawings, subject to correction, however, should error appear.

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(4) That the Universal Film Exchange of New York, defendant herein, is engaged in the business of buying motion pictures and leasing them to exhibitors thereof; that Universal Film Manufacturing Company, defendant herein, is engaged in New York City and elsewhere in the United States, in the business of making and selling motion picture films, and that in the course of such business it sells motion picture films produced by it to said Universal Film Exchange of New York; that subsequent to March 4th, 1915, and prior to March 17th, 1915, it sold to said Universal Film Exchange of New York a copy of a certain motion picture entitled "The Five Pound Note" under the brand name of "Imp-Universal" and a copy of a certain motion picture entitled "Refugees" under the brand name of "Joker-Universal"; that said copies of said motion pictures "The Five Pound Note" and "Refugees" were supplied by said Universal Film Exchange of New York to said Prague Amusement Company on March 17th, 1915, for use upon its said Simplex machines, and that said motion pictures were so used on that date by said Prague Amusement Company at said 72nd Street Playhouse by feeding said copies through its said machines, and thus causing said photographs to be projected on a screen in said 72nd Street Playhouse.

Dated, New York, N. Y., December 14, 1915.

GEORGE F. SCULL,  
Solicitor for Complainant.

WETMORE & JENNER,  
Solicitors for Defendants.

FIG. 1

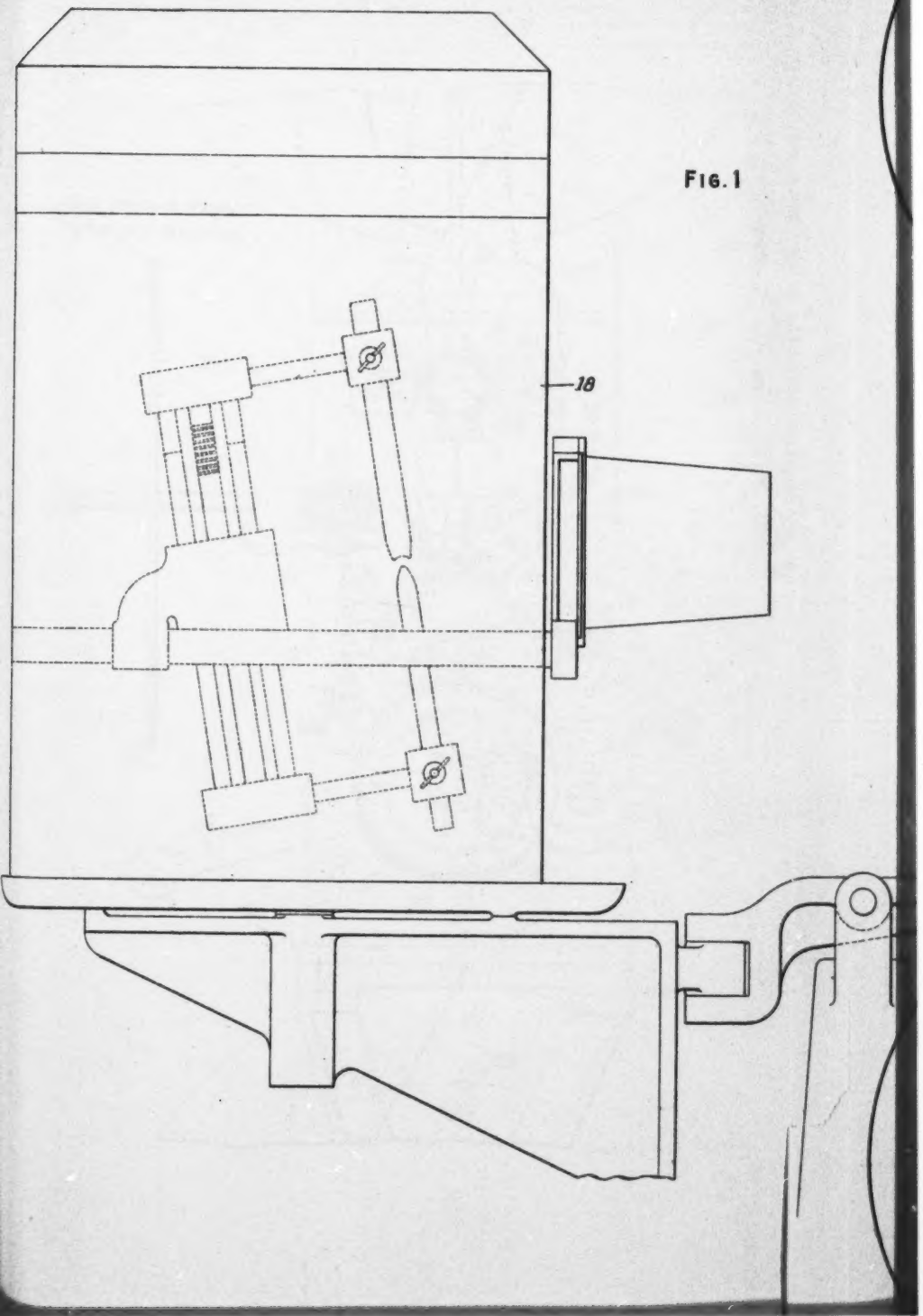
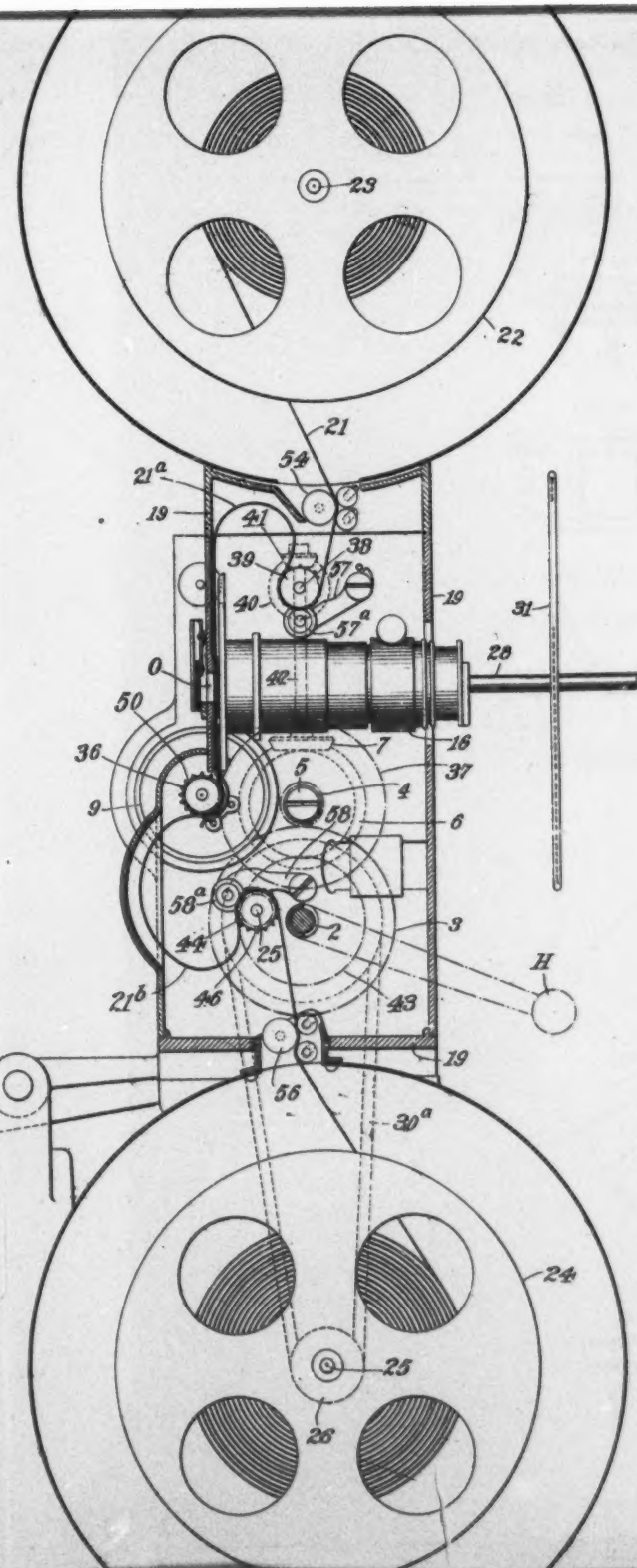
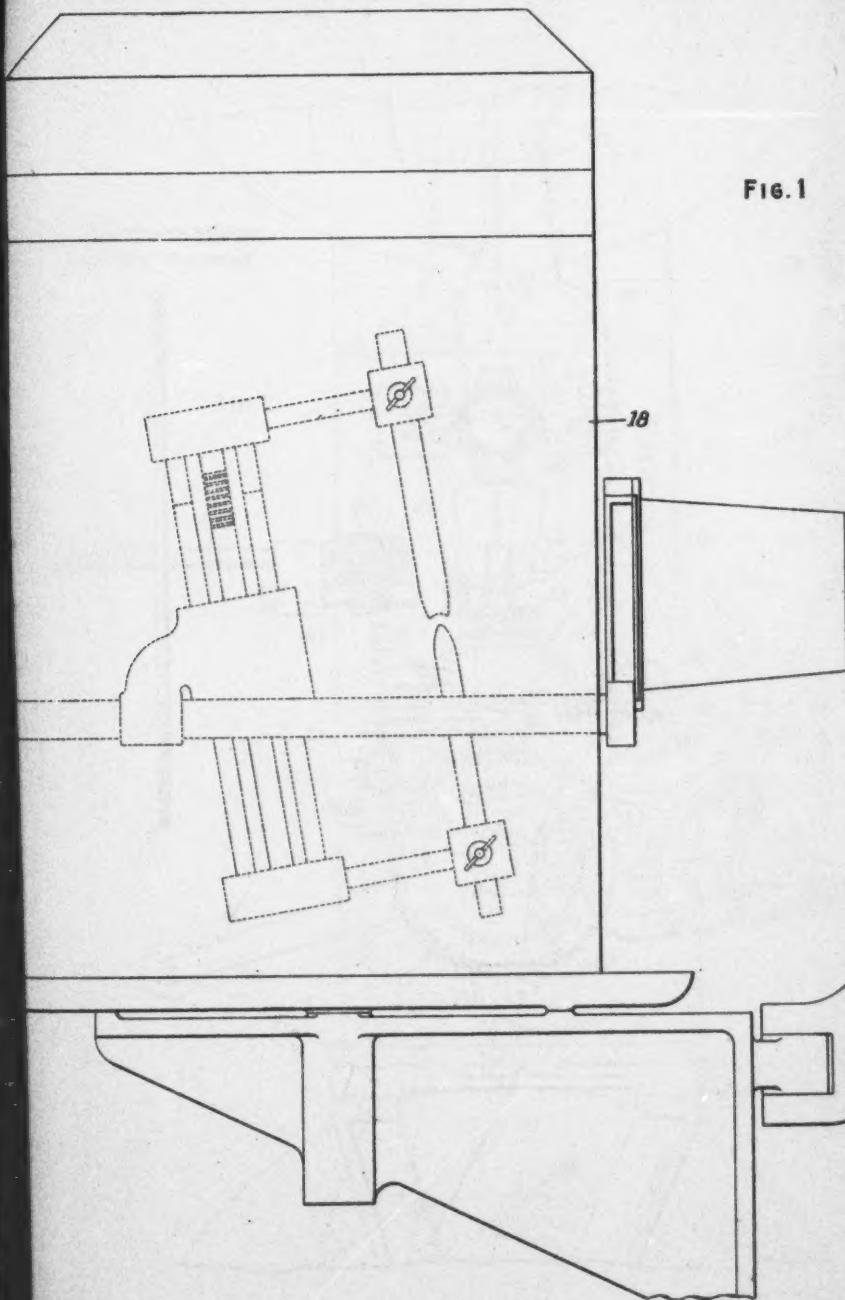


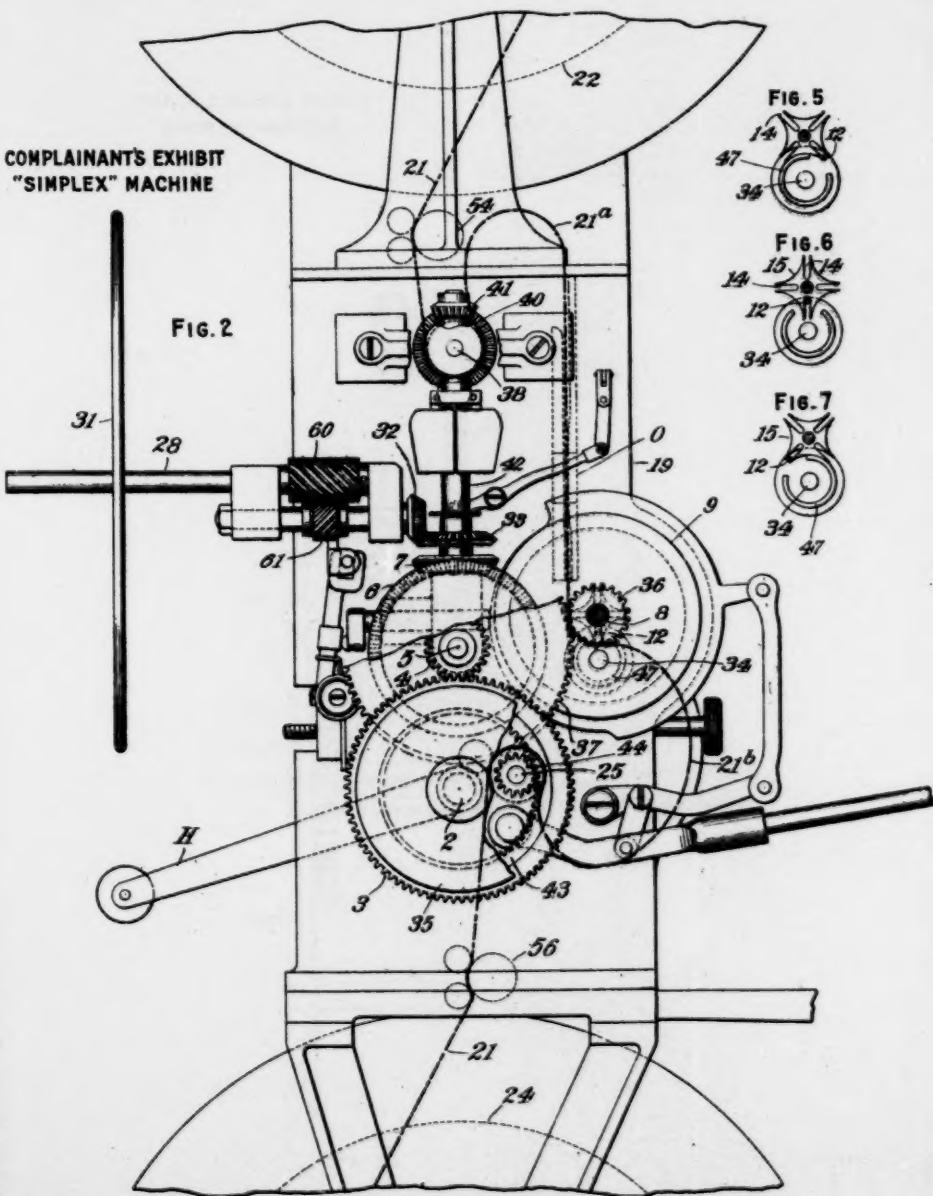
FIG. 1



7  
3  
8

208

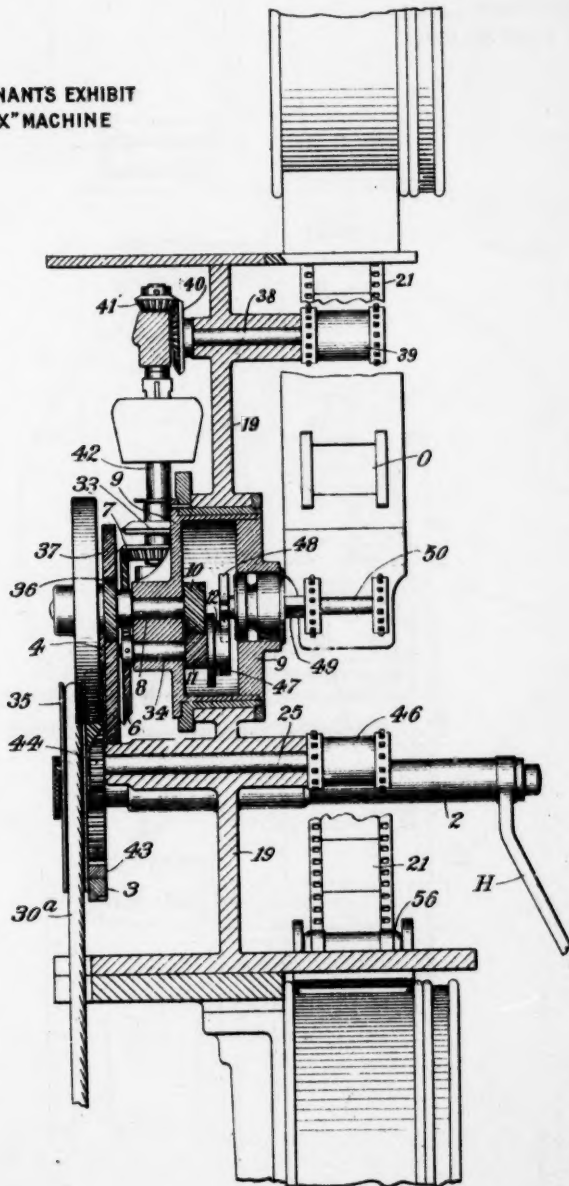
COMPLAINANT'S EXHIBIT  
"SIMPLEX" MACHINE



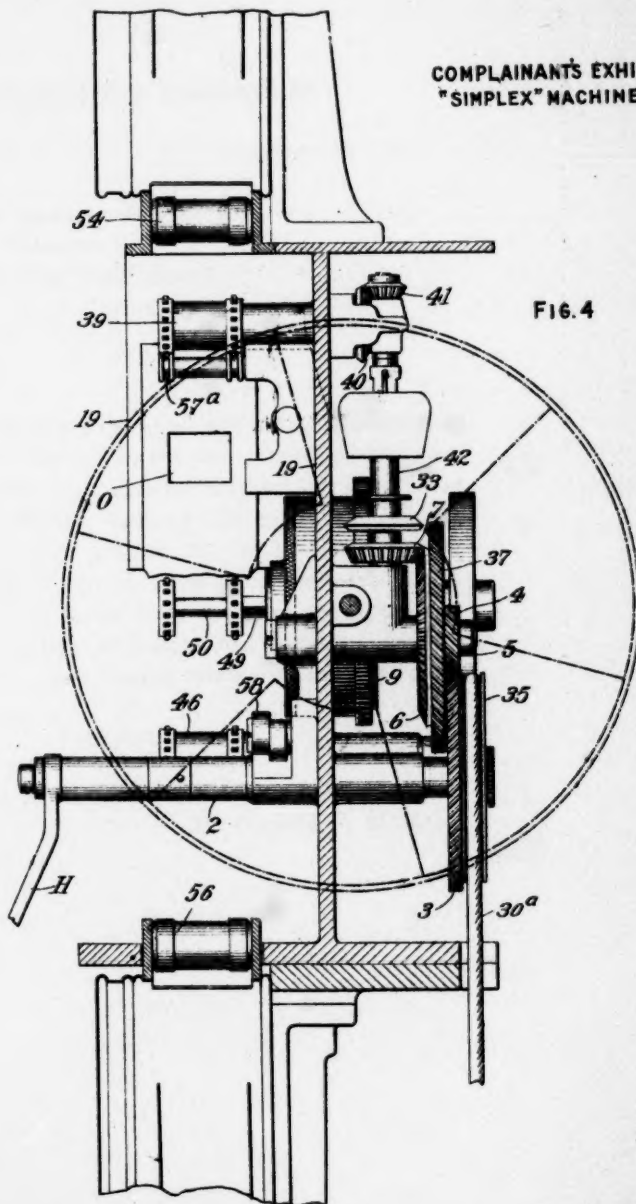


COMPLAINANTS EXHIBIT  
"SIMPLEX" MACHINE

FIG. 3





COMPLAINANT'S EXHIBIT  
"SIMPLEX" MACHINE



**Plaintiff's Exhibit G.**

2233

January 18, 1915.

72nd Street Amusement Company,  
Mr. L. Bologino,  
350 East 72nd Street,  
New York City.

Gentlemen :

We are informed that you are using without our license at the above address one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,934 (Latham), dated August 26, 1902, owned by us. Such use constitutes an infringement of said patent and makes you liable to a suit for an injunction and an accounting of profits and damages, and we hereby notify you to desist from such infringement.

2234

Very truly yours,

MOTION PICTURE PATENTS COMPANY,  
By GEORGE F. SCULL.

GFS-DP

2235

2236

**Plaintiff's Exhibit H.**

January 18, 1915.

Universal Film Exchange of New York,  
1600 Broadway,  
New York City.

Gentlemen:

We are informed that at the following places one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,934 (Latham), dated August 26, 1902, are being used without license from us as owners of said patent:

2237

Family Theatre, 117 East 125th Street, New York City.

Washington Theatre, 1803 Amsterdam Avenue, New York City.

Manhattan Theatre, 1059 Manhattan Avenue, New York City.

72nd Street Playhouse, 350 East 72nd Street, New York City.

Varieties Theatre, 112 Third Avenue, New York City.

2238 Bunny Theatre, 2067 Fulton Street, Brooklyn, New York.

Eden Theatre, 409-11 Fifth Avenue, Brooklyn, New York.

59th Street Theatre, 313 West 59th Street, New York City.

Empire Theatre, 2363 Eighth Avenue, New York City.

Little Bijou Theatre, 11 Park Row, New York City.

Movies Theatre, 248 West 14th Street, New York City.

Comedy Theatre, 46 East 14th Street, New York City.

Colonial Theatre, 791 Westchester Avenue, New York City.

Ascher's Colonial Theatre, 481 Willis Avenue, New York City.

Keeney's Third Avenue Theatre, 445 Third Avenue, New York City.

Bryant Theatre, 223 West 42nd Street, New York City.

Grand Palace Theatre, 305-7 Market Street, Newark, New Jersey.

Royal Theatre, 490 Broad Street, Newark, New Jersey. 2240

Academy Theatre, 342 Central Avenue, Jersey City, New Jersey.

Star Theatre, 445 Central Avenue, Jersey City, New Jersey.

Washington Show, 137 Main Street, Paterson, New Jersey.

Home Theatre, 38 North Main Street, Paterson, New Jersey.

Plaza Theatre, 400½ Springfield Avenue, Newark, New Jersey.

Red Star Theatre, 405 Bergenline Avenue, Union Hill, New Jersey. 2241

We are informed also that you are supplying motion picture films for use on such machines and are thereby aiding and contributing to such infringing use of said machines. We hereby notify you to cease such supply; otherwise we will be obliged to enforce our rights by a suit asking for an injunction and an accounting of profits and damages.

Very truly yours,

MOTION PICTURE PATENTS COMPANY.

By G. F. S.

GFS-DP

2242

**Plaintiff's Exhibit I.**

March 3, 1915.

Universal Film Manufacturing Company,  
1600 Broadway,  
New York City.

Gentlemen :

2243 We are informed that at the following places one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,934 (Latham), dated August 28, 1902, are being used without license from us as owners of said patent :

Family Theatre, 117 East 125th Street, New York City.

Washington Theatre, 1803 Amsterdam Avenue, New York City.

72nd Street Playhouse, 350 East 72nd Street, New York City.

Varieties Theatre, 112 Third Avenue, New York City.

2244 Bunny Theatre, 2067 Fulton Street, Brooklyn, New York.

Empire Theatre, 2363 Eighth Avenue, New York City.

Little Bijou Theatre, 11 Park Row, New York City.

Movies Theatre, 248 West 14th Street, New York City.

Comedy Theatre, 46 East 14th Street, New York City.

Ascher's Colonial Theatre, 481 Willis Avenue, New York City.

Keeney's Third Avenue Theatre, 445 Third Avenue, New York City.

Bryant Theatre, 223 West 42nd Street, New York City.

Grand Palace Theatre, 305-7 Market Street, Newark, New Jersey.

Royal Theatre, 490 Broad Street, Newark, New Jersey.

Academy Theatre, 342 Central Avenue, Jersey City, New Jersey.

Washington Show, 137 Main Street, Paterson, New Jersey.

2246

Plaza Theatre, 400½ Springfield Avenue, Newark, New Jersey.

Red Star Theatre, 405 Bergenline Avenue, Union Hill, New Jersey.

We are informed also that motion picture films for use on such machines are being supplied by the Universal Film Exchange of New York, Inc., and that you are supplying to the Universal Film Exchange of New York, Inc., the motion picture films which it is supplying for use on such machines, and you are thereby aiding and contributing to such infringing use of such machines.

2247

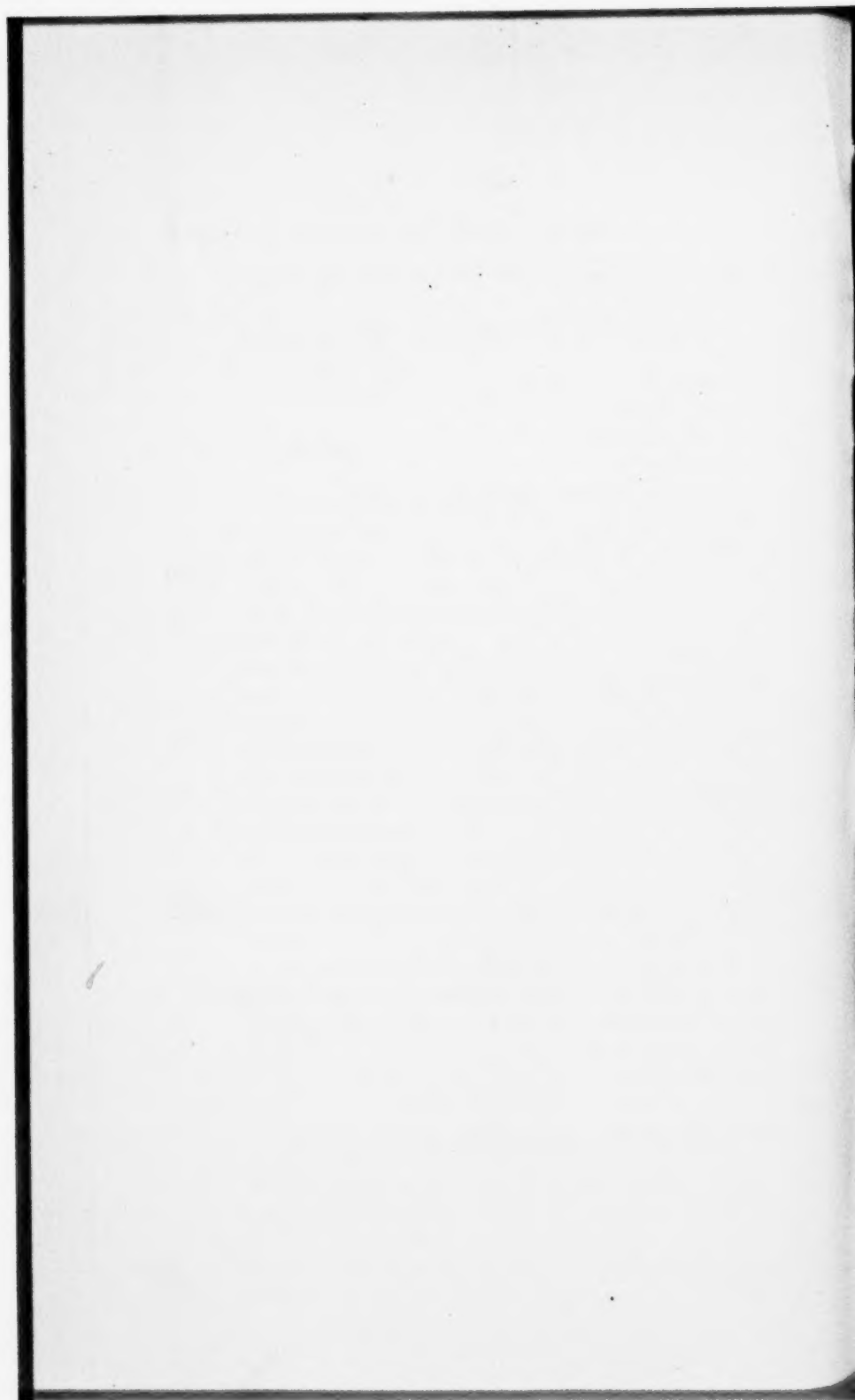
We hereby notify you to cease such supply; otherwise we will be obliged to enforce our rights by a suit asking for an injunction and an accounting of profits and damages.

Very truly yours,

MOTION PICTURE PATENTS COMPANY,

By S.

GFS-DP



# PLAINTIFF'S EXHIBIT No. J

751

Form 3821.

Bill No. 191, Page of Bill 1, Post Office at the following described  
 RECEIVED 191, from pieces of registered mail, (parcels, numbered from to, inclusive,  
 making a total of pieces. for 500 for Postmaster.

(Write number here in words.)

(Receiving clerk will sign here as well as on the coupon of the bill below.)

NAME OF ADDRESSEE	STREET AND POST-OFFICE ADDRESS	REGISTERED NUMBER	CLAIM	Revised to date (See instructions)	Revised to date (See instructions)	REMARKS
<u>Off. Felton</u>	<u>213 9th St</u>	<u>19130</u>	<u>Returned next del.</u>			
<u>W. Lee</u>	<u>128 4th St</u>	<u>1</u>	<u>1, 2, 4, 5, 7, 8</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>2</u>				
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>3</u>				
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>4</u>	<u>25</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>5</u>	<u>1</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>6</u>	<u>1</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>7</u>	<u>2</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>8</u>	<u>27</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>9</u>	<u>28</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>10</u>	<u>29</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>11</u>	<u>30</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>12</u>	<u>31</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>13</u>	<u>32</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>14</u>	<u>33</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>15</u>	<u>34</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>16</u>	<u>35</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>17</u>	<u>36</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>18</u>	<u>37</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>19</u>	<u>38</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>20</u>	<u>39</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>21</u>	<u>40</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>22</u>	<u>41</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>23</u>	<u>42</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>24</u>	<u>43</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>25</u>	<u>44</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>26</u>	<u>45</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>27</u>	<u>46</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>28</u>	<u>47</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>29</u>	<u>48</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>30</u>	<u>49</u>			
<u>Wm. J. Campbell</u>	<u>120 4th St</u>	<u>31</u>	<u>50</u>			

Bill No. 191, Page of Bill 1, Total of 191 Registered Pieces  
 Received from the above-described Registered  
 numbered from to, inclusive.

and has been signed, this Coupon  
 sent over to the counterparty in the  
 next column.

(Receiving clerk will sign here as well as at the top of the sheet.)

for Postmaster.

3-120



752

1. ON THIRTEEN & THIRTY

**Plaintiff's Exhibit K.**

2257

POST OFFICE DEPARTMENT  
Official Business

Original Reg. No.  
19550

Return To  
M P P Co.

(Name of sender.)

Street and Number,  
or Post Office Box

Penalty for Private Use To  
Avoid Payment of Postage,  
\$300.

Post Office  
stamp  
Jan. 19, 1915  
6 P. M.

80 5 Av

NEW YORK,

NEW YORK.

The postmaster who delivers the registered article must see that this card is properly signed, legibly postmarked, and mailed to the sender, without envelope or postage.

2258

**REGISTRY RETURN RECEIPT.**

Form 1548.

1915 Jan 20 A M 10

Received from the postmaster registered article, the original number of which appears on the reverse side of this card.

Date of Delivery 1/19/15.....191.....

(To be filled in by person signing receipt.)

When delivery is made to an agent of the addressee, both addressee's name and agent's signature must appear in this receipt.

L. Bologino,  
(Signature or name of addressee.)

C. Vysehrad  
(Signature of addressee's agent.)

Registered matter, the delivery of which has not been restricted by the sender or the addressee, is deliverable to any responsible person who customarily receives the ordinary mail of the addressee. (See Sec. 935, P. L. and R.)

When the above receipt has been properly signed, it must be postmarked with the name of delivering office and actual date of delivery and mailed to its address, without envelope or postage.

2259

2260

**Complainant's Exhibit I.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

2261

MOTION PICTURE PATENTS CO.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,  
Defendant.

In Equity  
No. 5-167.

COMPLAINANT'S EXHIBIT.

**Lauste Deposition in Armat Inter-  
ference.**

2262

UNITED STATES OF AMERICA,  
DEPARTMENT OF THE INTERIOR,  
United States Patent Office.

To all to whom these presents shall come,  
GREETING:

THIS IS TO CERTIFY, that the annexed is a  
true copy from the Records of this Office of the

Testimony of Eugene Lauste on behalf of Casler, 2263  
received June 15, 1898, in the matter of

---

LATHAM

vs.

CASLER

vs.

ARMAT.

---

} Interference  
Number  
18,461.

SUBJECT MATTER:

2264

Apparatus for Projecting on a Screen Pictures of  
Moving Objects.

(Seal) IN TESTIMONY WHEREOF, I have hereunto  
set my hand and caused the seal of  
the Patent Office to be affixed at the  
City of Washington, this 5th day of  
April, in the year of our Lord one  
thousand nine hundred and eleven  
and of the Independence of the United  
States of America the one hundred 2265  
and thirty-fifth.

F. A. TENNANT,  
Assistant Commissioner of Patents.

2266

New York, April 29th, 1898; 10 a. m.

Met pursuant to adjournment.

Present—E. M. MARBLE, Esq., Atty. for Casler;  
J. E. M. BOWEN, Esq., Atty. for Latham.  
No one appearing for Armat.

EUGENE LAUSTE, a witness called on behalf of Herman Casler, being first duly sworn, testifies as follows in answer to interrogatories propounded

2267 by Mr. Marble:

Q1. Please state your name, age, residence and occupation?

A. Eugene Lauste; age, 41; residence, Paris, France; and occupation, electrician and operator of the Biograph Company.

Q2. You say that your residence is in Paris, France; state whether you ever lived in the United States?

A. Yes, about eleven years.

Q3. Where were you born?

A. In Paris, France.

2268

Q4. When did you come to this country first?

A. In 1886, I think.

Q5. Where were you living in 1894, 1895 and 1896?

A. Well, in 1894 I lived at 35 Frankfort Street, New York City; in 1895, in Brooklyn; in 1896, in New York.

Q6. Do you know Mr. Woodville Latham?

A. I know him, yes.

Q7. When did you make his acquaintance?

A. In September, 1894.

Q8. Where did you first meet Mr. Woodville Latham?

A. In Twenty-first Street, New York City.

Q9. State how you came to meet Mr. Latham there?

A. By Mr. Dickson.

Q10. What Mr. Dickson?

A. William Laurie Kennedy Dickson.

Q11. How long have you known this Mr. Dickson?

A. For about six years.

Q12. Where did you make his acquaintance?

2270

A. At Edison's Laboratory.

Q13. Where is that?

A. At Orange, New Jersey.

Q14. You say you met Mr. Woodville Latham by Mr. Dickson. Why do you say that?

A. Mr. Dickson told me that he had something good for me in way of a situation in connection with a machine for projecting pictures.

Q15. I wish you could state all the conversation you had with Mr. Dickson, to which you refer in your last answer?

A. Well, Mr. Dickson said that Mr. Latham would explain everything to me about that business.

2271

Q16. State whether you had a letter of introduction to Mr. Latham from Mr. Dickson?

A. Yes, I got a letter from Mr. Dickson, to Mr. Latham.

Q17. Did you hand this letter from Mr. Dickson to Mr. Latham when you called on him?

A. Yes.

Q18. If you can, I wish you would state what Mr. Latham said to you on this first call that you made on him?

A. Well, he explained to me his idea of a machine

2272

for projecting pictures, and if I understand the machine I was to build a machine for that. I said yes. Mr. Latham said, I don't understand the mechanic part, but if you will build a machine and have good success with it I will give you a good situation. Well, I said, anything in the way of mechanics I can make, because I am well acquainted with mechanics. Then Mr. Latham said we want to first experiment with the projecting machine, and if you have success we will build the taking machine after. Mr. Latham asked me what kind of tools I needed for the shop. I explained to him

2273

that I wanted a lathe and drill press, and grindstone and all the small tools he can give me. Mr. Latham says, the first thing to do is to get the work shop, and I am going out with Mr. Otway Latham to find the shop. We found a place, I don't remember where, and everything was stopped afterwards, we did not do anything for about four weeks, then Mr. Latham called me again, and said, I have money now to start the business, and we found another place in Frankfort Street. Now, Mr. Latham told me he would not come many times to the shop but

2274

would leave me alone to work at the machine, and only Mr. Otway would stay in the shop with me to see what I would do. Mr. Latham gave me \$20,000 shares for the idea of the machine. I started working the 4th of October, 1894, in the shop in Frankfort Street.

Q19. When you say in your last answer, "He explained to me his idea of a machine for projecting pictures," do you mean to be understood that he told you how the machine was to be constructed?

Objected to as leading, the proper form of inquiry would be "What did Mr. Latham say to you about his idea?"

A. No. He said to me that his son had seen an exhibition of the kinetoscope and he wanted to make an exhibition on a screen, and asked me if I can build a similar machine to the kinetoscope, but for projecting. And his son showed me in a place on Broadway a kinetoscope. After that I started working on the first machine, and we used a kinetoscope film on this machine for experimenting. Now, that machine did not suit Mr. Latham and I started another one.

Q20. State whether Mr. Latham ever showed to you a sketch or drawing of what he thought would make a projecting machine for exhibiting pictures on a screen?

2276

A. I never got a sketch from him. I made the first one.

Q21. When did you make this sketch?

A. On the fifth or sixth of October.

Q22. What did you do with it?

A. I started the machine from it.

Q23. State whether you showed that sketch to anybody?

A. Well, Mr. Woodville Latham and Mr. Otway Latham saw it. I showed it to them.

2277

Q24. When was it you showed this sketch to Mr. Woodville Latham and Mr. Otway Latham?

A. About the fifth or sixth of October, or somewhere about that time, 1894.

Q25. Where were you when you made that sketch?

A. At Frankfort Street, in the shop.

Q26. Where is the sketch now, if you know?

A. Well, I have that sketch home, but I don't know if I can find it.

Q27. Have you made any search for it?

A. Not exactly, I will find out to-day.

2278

*Lauste, Interference Deposition.*

Q28. Have you tried to find it?

A. Yes, but my furniture is in storage and it gives me a great deal of trouble to find anything.

Q29. When did you try to find it?

A. Yesterday, the 28th of April.

Q30. Can you make a sketch like that sketch which you made, as you have stated, and showed to Mr. Woodville Latham and Mr. Otway Latham?

A. Yes.

Q31. Please make such a sketch?

2279

A. I have made the sketch and here produce it.

The sketch made and produced by the witness is offered in evidence and marked "Casler's Exhibit Lauste Sketch No. 1."

Mr. Bowen: The offering and receiving in evidence of the sketch "Casler's Exhibit Lauste Sketch No. 1," which the witness has just made, is objected to on the ground that it is in the nature of secondary evidence and hence, clearly incompetent. At the hearing of this case, a motion will be made to exclude it from consideration.

2280

Q32. I wish you would take this sketch which you have produced, and state what the different parts therein represented illustrate to you; that is, what are they? And you may mark those different parts with letters, A, B, C, etc.

The question is objected to as incompetent and counsel for Latham wishes to state now on the record in order to save repeating objections, that the same objection is to apply to all testimony of this witness relating to this sketch.

A. A represents a shutter; B, an electric motor; C, the frame, D, a window; E, a sprocket wheel;

F, rollers; and G, gear connecting the sprocket with the motor.

Q33. When you made this sketch you have spoken of and showed it to Mr. Woodville Latham and Mr. Otway Latham, what, if anything, did you say to them about it?

A. I said that it was something similar to the kinetoscope, with a motor attachment on the same machine. This machine was never used because the motor was too small and had not enough power, and I started another machine, a new one. At that time Mr. Kleinert came, and he objected that the machine would take too long to finish.

2282

Q34. At this time that you showed that sketch to Mr. Woodville Latham and Mr. Otway Latham, did you tell them what the different parts of the sketch represented, and how it would operate?

A. Yes, and he said, I trust you, you go ahead.

Q35. Who said that?

A. Mr. Woodville Latham.

Q36. When did you commence work on this machine which you have mentioned?

A. About the seventh or eighth of October, 1894.

Q37. Was that machine ever completed?

2283

A. No.

Q38. State whether you ever made any machine for Mr. Latham, and what kind of a machine it was—I mean the first machine?

A. The first machine was a projecting machine and was made from the drawing.

Q39. What drawing?

A. This one I made just now.

Q40. Do you mean this sketch, or the one you showed to Mr. Woodville Latham and Mr. Otway Latham, as you have testified?

A. Well, the sketch I showed to Mr. Latham.

2284

Q41. When was that machine completed?

A. In December, 1894.

Q42. In the machine that you first completed, what was used to carry the pictures?

A. A kinetoscope film.

Q43. How was that film to be moved?

A. By an electric motor, continuously, without stopping.

Q44. What use, if any, was made of that machine?

A. I did not use this one; I started a new one.

2285

Q45. Do you mean in your last answer, the machine which you say was completed, you think, in December, 1894?

A. No, I don't mean this one.

Q46. You have testified that you made a machine and it was completed in December, 1894, and that it was intended to be used with a kinetoscope film. Now, was any use at all made of that machine after it was completed? Did you test it or try it, to see what it would do?

A. Yes, we tried it, and after this experiment we started a new machine, a new style, a larger film.

2286

Q47. You have testified to having made a sketch, and to have shown it to Mr. Woodville Latham and Mr. Otway Latham, about the fifth or sixth of October, 1894; state whether you ever made any other sketch or drawings in connection with your work for Mr. Latham?

A. Yes, I made some other sketch.

Q48. When did you make that other sketch?

A. In December, 1894.

Mr. Bowen: The testimony as to this other sketch is objected to as secondary, the best evidence being the sketch itself if it were made.

Q49. State whether you showed that sketch to anybody or not—this second sketch.

A. Yes; I think Kleinert saw that sketch. Kleinert gave many pieces of machinery for use on this machine, he brought them in.

Q50. State whether you showed this second sketch to Mr. Woodville Latham?

Mr. Bowen: Objected to as leading and suggestive.

A. Yes, I showed it to him.

2288

Q51. Where is that sketch, if you know? I mean this second sketch?

A. Well, the second sketch I don't know, but after the machine was made I made a new sketch and had a blue-print, and Mr. Woodville Latham took that sketch with him, and I never saw it again.

Q52. Then from your last answer I understand that you made a third sketch or drawing from which a blue-print was taken. Where is this sketch or drawing, if you know?

A. I don't know; Mr. Latham took it.

2289

Mr. Bowen: The same objection is made regarding this alleged third sketch and blue-print as was made to the testimony having reference to this alleged second sketch.

Q53. I want to know, Mr. Lauste, if you know, where this sketch or drawing is which you made after the machine was completed, and from which a blue-print was made?

A. I don't know.

Q54. Do you mean that you gave this third sketch, the one made after the machine was completed, to Mr. Woodville Latham?

2290

*Lauste, Interference Deposition.*

Mr. Bowen: Objected to as leading and suggestive.

A. Yes, Mr. Woodville Latham took it from the bench, and when I asked him where it was, he said he took it home.

Q55. State whether you wrote your name, or put any dates on any of these sketches which you have mentioned?

A. Yes, I put my name, but I don't know if I put the date, I am not sure.

2291

Q56. Did you put your name on each of the sketches?

A. Well, I guess so.

Q57. What did you put your name on the sketches for?

A. In case they should be used sometime—for testimony or something like that.

Q58. Please describe what was shown on the second sketch which you made and which you gave to Mr. Woodville Latham?

A. I showed the complete machine with objective, condenser and an arc lamp.

2292

Q59. Why did you make the third sketch, if the second one showed the complete machine?

A. Because Mr. Latham asked me for it.

Q60. Why did you make a blue-print of this third sketch—or a tracing?

A. I made a blue-print because I wanted to keep one for myself and give one to Mr. Latham.

Counsel for Casler requests Mr. Woodville Latham, who is now present, and his counsel, Mr. Bowen, to produce these sketches which the witness says he made and gave to Mr. Latham.

Mr. Bowen: Counsel for Latham replies that he has never seen the alleged sketches and he is satisfied that they are not in Mr. Latham's possession, and this denial will be made in the regular way when an opportunity is given to put in testimony in rebuttal to this remarkable testimony which is being given to-day.

Q61. Can you make a sketch like the second one which you made and gave to Mr. Latham?

A. Well, yes, near, not exactly. We used that drawing for two purposes. First, for continuous motion and second elliptical gear, for alternating motion, slow or fast.

2294

Q62. Please make a sketch as nearly as you can like the second sketch you made and gave to Mr. Latham?

A. I have made the sketch and here produce it.

The sketch produced by the witness is offered in evidence by counsel for Casler and the same is marked "Casler's Exhibit Lauste Sketch No. 2."

Mr. Bowen: The offering and receiving in evidence of the drawing marked "Casler's Exhibit Lauste Sketch No. 2" is objected to on the ground that it is secondary in character and not the best evidence. Its exclusion from the evidence will be urged at the hearing.

2295

Q63. I notice that you have put letters near to the parts of the apparatus which you have illustrated in "Casler's Exhibit Lauste Sketch No. 2." Were the letters on the sketch which you made and gave to Mr. Woodville Latham?

A. No.

2296

*Lauste, Interference Deposition.*

Q64. State whether at any time you explained the second sketch you made, and which you have now reproduced, to Mr. Latham; that is, told him what the parts were, and how they operated?

Mr. Bowen: Question objected to and all testimony having reference to this sketch, or the reproduced sketch, is objected to on the ground that it is incompetent as calling for secondary evidence.

2297

A. I explained it to Mr. Latham, but I don't remember the date; it was shortly after Mr. Kleinert came. This machine was built with different pieces used in the kinetoscope brought by Mr. Kleinert.

Q65. State whether you explained this second sketch you made to Mr. Woodville Latham so that he understood it?

A. Well, I explained it to Mr. Kleinert and him both.

2298

Q66. You have testified that you made a third sketch after the machine was completed, which Mr. Woodville Latham took away with him. You have produced a sketch which you have stated off the record is like the third sketch which you made. Please examine this sketch—the third sketch—which I now hand you, and say whether it is like or unlike in all particulars or any particular the third sketch which you made after the first machine was completed?

Mr. Bowen: Objected to as calling for secondary evidence and also because the sketch which the witness has just made and to which the question relates is immaterial and irrelevant so far as the issue of this

interference is concerned, and this objection is intended to apply to all of the testimony of this witness relating to this sketch.

A. Yes, it is the same.

(Recess.)

Counsel for Casler offers in evidence the sketch made and produced by the witness as a reproduction of the third sketch made by him after the machine was completed, and the same is marked "Casler's Exhibit Lauste Sketch No. 3." 2300

The offering and receipt in evidence of the sketch "Casler's Exhibit Lauste Sketch No. 3" is objected to on the ground that it is not the best evidence, being secondary in its nature and, moreover, the machine which it illustrates is not the machine of this issue, for which reason the sketch is immaterial and irrelevant.

Q67. State whether or not this "Sketch No. 3," marked "Casler's Exhibit Lauste Sketch No. 3," correctly represents the first machine, as it is called in this record, which you made for Mr. Woodville Latham? 2301

Mr. Bowen: This question and all others that may be asked concerning the sketch inquired about, objected to as incompetent.

A. This Sketch No. 3 refers to a machine with continuous motion using elliptical gear for varying the speed.

2302

Q68. Who designed and invented the machine represented on these three sketches which you have produced, and now marked "Casler's Exhibit Lauste Sketches Nos. 1, 2 and 3?"

A. Well, I did the sketching, but there is no invention in it, because it is a copy of the kinetoscope. The only invention I done was in the taking machine.

2303

Q69. In your last answer you mention a "taking machine." During the taking of the testimony in behalf of Mr. Woodville Latham a machine was produced and offered in evidence and marked "Latham's Exhibit No. 12." This machine was sometimes spoken of by Mr. Bowen and Mr. Woodville Latham as the "original machine," or the "first machine," and was, as it appears in the evidence, made for a taking machine or camera. The testimony shows that its construction was commenced sometime in December, 1894, and that you worked on that machine, and later on had as an assistant Mr. E. W. Kleinert. Please state whether you worked upon and assisted in constructing a machine such as is referred to in this question?

2304

Counsel for Latham denies that the first or original machine which is in this case as "Latham's Exhibit No. 12," was referred to in the testimony on behalf of Latham as a "camera." It was claimed to be the first or original machine constructed that embodied a stop-motion mechanism, and it is the machine upon which this witness Lauste worked under the direction of Mr. Latham and in his pay.

A. Yes, I started the drawing, and the pattern, and I built all the machine. I had some pieces

made by Pierce in John Street, and workmen from Pierce—a tool-maker—assisted me in making the gearing, bushing, and I stayed in the shop all the week giving my instructions to the men working, because I had no drawings made for each piece, and I watched the men working so they would do what I wanted.

Q70. Who designed and invented that machine?

A. I did. I made the drawing in two hours, and I started the pattern immediately, the same day.

Q71. What kind of movement was it intended that this machine should give to the picture-carrying film?

2306

A. There was a stop motion by using gear in the form of a Maltese cross, like a watch; that was the principle of the invention.

Q72. State whether this stop which you have mentioned in your last answer, gave to the film a continuous movement or an intermittent movement?

A. An intermittent movement.

Q73. What was this machine that you have said had the intermittent movement, made to do; that is, what was the object of building that machine?

2307

A. To take pictures; forty a second.

Q74. State what use, if you know, this machine was ever put to; what they did with it?

A. For taking pictures for use on the eidoscope projecting machine.

Q75. Where was this machine used for taking pictures to be used on a projecting machine?

A. In the shop.

Q76. Anywhere else?

A. Yes, we used it on the roof of the Madison Square Garden to take a prize fight.

Q77. Who were the fighters?

A. Griffo and Barnett.

2308

Q78. When was this machine so used on the Madison Square Garden for taking pictures?

A. I don't know. I think it was March or April.

Q79. State whether it was used on the roof of the building where your shop was for taking pictures?

A. Yes. We used it, too, on the Police Gazette Building.

Q80. Where did you sleep from the time that you commenced to work for Mr. Latham on for several months?

2309

A. I slept in the shop.

Q81. You mean the shop where this machine was made that you have been testifying about?

A. Yes.

Q82. When did you commence to sleep there?

A. I think it was the fifth of October, 1894.

Q83. How long did you continue to sleep there?

A. I think I left one month before moving for Beekman Street.

Q84. When did you move to Beekman Street?

A. I don't remember.

Q85. Do you know Mr. W. K. L. Dickson?

2310

A. Yes, I know him.

Q86. Did this Mr. Dickson associate himself with Mr. Latham and his sons at any time?

A. Yes, sometime in April, 1895.

Q87. Did Mr. Dickson come with Mr. Latham and his sons before or after they moved to Beekman Street?

A. He came before we moved. And he left, too, before we moved to Beekman Street.

Q88. State whether you were still sleeping in the shop where this machine, "Latham's Exhibit No. 12," was made by you at the time Mr. Dickson came

and associated himself with Mr. Latham and his sons in business?

A. Yes.

Q89. State whether this machine "Latham's Exhibit No. 12," about which you have testified, was ever used as a projecting machine?

A. No. We make only experiment with it, but it did not do, it did not work.

Q90. Where did you make these experiments?

A. In the developing room in Frankfort Street, the same place.

Q91. Do you mean the same place where the machine was constructed?

A. No, not the same place, but the same building, because we had three rooms.

Q92. How many experiments did you try with it?

A. Only one time.

Q93. Why would it not do for a projecting machine?

A. Because the machine was not made for projecting; it was meant for taking.

Q94. What was there about the machine, or the films used, which made it impossible to use this machine, "Latham's Exhibit No. 12," for projecting pictures on the screen?

A. Because of the shrinkage of the film. The taking machine used an unexposed film, and after developing, the film shank and don't fit the sprocket.

Q95. What don't fit the sprocket?

A. The film—the holes don't fit the teeth on the sprocket.

Q96. While you had this machine, "Latham's Exhibit No. 12," at 35 Frankfort Street, state

2314

whether you saw it every day and every night it was there?

A. Yes, every day I saw it in the shop.

Q97. When it was taken over to 101 Beekman Street, did you go with it?

A. Oh, yes, I did not carry the stuff myself, but I went with the wagon every time and watched everything.

Q98. How long did you stay in the employ of the company or people who owned this machine, "Latham's Exhibit No. 12?"

2315

A. Two years and one month.

Q99. Do you mean to be understood as swearing that this machine, "Latham's Exhibit No. 12," was never used as a projecting machine, and could not be used as a projecting machine from the time you made it until you last saw it?

A. Yes.

Q100. You have mentioned a stop that was used in this machine for giving the film an intermittent movement. How did you come to use that stop, which is sometimes called the Geneva stop, in that machine?

2316

A. Well, I know I have to stop the film for every picture taken and I know the Maltese cross is the best motion for that purpose, and I found the drawing in a catalogue of the Boston Gear Works, and Mr. Kleinert wrote for me to get information for me about the size, because I can't make the calculation myself, it is too much computation.

Q101. Why did Mr. Kleinert write to the Boston Gear Works? Why did you not write yourself?

A. Because I cannot write good English. I was afraid people cannot understand me.

Q102. Do you mean to be understood that Mr. Woodville Latham did not direct you to use this

Maltese cross stop, as you call it, in that machine?

A. I spoke to Mr. Latham, and he said that is a good scheme, a good idea.

Q103. In the issue of this interference, a slack or loop is made necessary in the film by the tension device. Where did you get the idea of having such a slack or loop in the film?

A. From a book I saw at Edison's Laboratory. And I asked Mr. Latham to get me that book, I don't know the name. Mr. Dickson was using that book. Mr. Latham never found that book. The same as me, I looked all over, but never found it.

2318

Q104. When was it you saw this book in Edison's Laboratory, that suggested the idea of a slack or loop in the film?

A. In 1890 or 1891, I am not sure.

Q105. How came you to be in Edison's Laboratory?

A. When I left Paris, I went right to Mr. Edison, I had a recommendation to him.

Q106. Did you work for him?

A. Yes, about seven years.

Q107. When did you leave Mr. Edison's employ?

A. The 30th of March, 1892.

2319

Q108. Have you any book which has in it a cut or picture like that cut or picture of the machine you saw in this book in Edison's Laboratory?

A. No, I can't find the book. But I found in Paris that Professor Marey uses the loop in his first taking machine in 1888.

Q109. Where did you get the idea of using reels to carry the film with? One to receive the film and the other to carry it until it is pulled through the machine?

A. Why, that is my own idea.

2320

Q110. Did you get the suggestion from any book?

A. Oh, no, no, no.

Q111. It appears in the testimony that Mr. Kleinert assisted you in the building of this machine marked "Latham's Exhibit No. 12." What work did Mr. Kleinert do on that machine, if you remember?

A. The only work he do is in turning the sprocket.

Q112. Who supervised the making of the parts for that machine which were made at Pierce's shop?

A. I did.

2321

Q113. Do you mean to be understood that Mr. Woodville Latham did not direct you how to make or suggest to you how to make any part of the machine marked "Latham's Exhibit No. 12?"

A. No, not anything.

Q114. In whose employ are you when you are in Paris?

A. Mr. Geangean, manufacturer of electrical works.

Q115. Did Mr. Otway Latham suggest the way of building or forming any part or parts of the machine marked "Latham's Exhibit No. 12?"

2322

A. Sometimes he give me some idea, but it don't do, it don't work. He is not mechanical.

Q116. State whether you made any sketch or drawing illustrating the machine which you made for Mr. Latham, and which now is "Latham's Exhibit No. 12?"

A. Yes, I made two different views, and I have two blueprints, too, of each view.

Q117. Where are these sketches, if you know?

A. Well, Mr. Latham took them with the blueprint of the projecting machine.

Q118. Have you ever seen them since?

A. Never.

Q119. Can you make sketches like those sketches were which you made to illustrate the taking machine which you built for Mr. Woodville Latham?

A. Yes.

Q120. Please make them?

A. I have made the sketches and now produce them.

The sketches produced by the witness are offered in evidence and marked "Casler's Exhibit Lauste Sketches No. 4."

The offering and receipt in evidence of the exhibit "Casler's Exhibit Lauste Sketches No. 4," objected to as incompetent and immaterial, and also because they are secondary and not primary evidence.

2324

Q121. What does this sketch near the left edge of the sheet on which these sketches are made, represent?

A. It represents the Maltese cross stop-motion, four turns to one.

Q122. When did you make the sketches of which "Casler's Exhibit Lauste Sketches No. 4" are a reproduction?

2325

A. The last of November or the first of December, 1894.

Q123. State whether you showed these sketches you made at the time stated to anyone, and if so, to whom?

A. I showed them to Mr. Woodville Latham, Mr. Otway, Mr. Kleinert.

Q124. When you showed the sketches, of which exhibit the Sketches No. 4 are a reproduction, to Mr. Woodville Latham, state whether you explained said sketches to him?

2326

*Lauste, Interference Deposition.*

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A. Yes, I explained them to him.

Q125. Did he seem to understand the sketches from your explanation?

A. I guess so, he told me to go ahead.

Q126. How large a sheet of paper were these sketches that are represented by "Casler's Exhibit Lauste Sketches No. 4" made upon?

A. Eighteen inches by a foot was the size of the paper, but the drawing was natural size.

Recess until 8 p. m.

2327

8 o'clock p. m.

The witness states that he wishes to make a correction: In the drawing Exhibit Lauste Sketch No. 4, is the single omission I make. In the first one I used a worm in place of the three gear.

Q127. You mean that you so represented it in the drawings of which these are a reproduction?

2328

A. Yes, in the first drawing I used a worm.

Cross-examination by Mr. Bowen, without waiving objections:

XQ128. You have done in your lifetime a good deal of fine work as a mechanic, have you not?

A. Yes.

XQ129. And wherever you have been employed, particular work, or work requiring much skill, has been entrusted to you, is that so?

A. Oh, yes.

XQ130. When did you arrive from Paris?

A. This time I left Liverpool the 20th of April, and I arrived here Wednesday, the 27th.

XQ131. Did you come to testify in this case?

A. The only thing I know, Mr. Koopman sent me here, and said, you want to see Mr. Marvin and he will explain to you what he wants you for.

XQ132. Is Mr. Koopman in Paris?

A. No, in London.

XQ133. What kind of work were you doing in Paris?

A. I operated the biograph, at the Casino, in Paris.

2330

XQ134. When did you last see Mr. Dickson? I mean W. K. L. Dickson?

A. About five months ago.

XQ135. Did you talk with him about the work that you did at the Latham shop?

A. No, I never spoke about it.

XQ136. Well, did Mr. Dickson speak to you about it?

A. No; he wrote to me some time ago and asked me if I remember that he is the inventor of the loop, and I said, No, because I made the machine before he came.

2331

XQ137. Before he came where?

A. With the Eidoloscope Co.—or with Mr. Latham.

XQ138. Do you mean that before Mr. Dickson came to Latham about this business you had made a machine at the Latham shops having a loop?

A. Oh, yes; the first machine I made I used the loop. However, Mr. Dickson made one suggestion, a supplementary sprocket.

XQ139. When did Mr. Dickson make the suggestion about this sprocket?—the date, I mean?

2332

A. The date I don't know, I can't remember the date. But when we take pictures, we tear the film, and after that Mr. Dickson put on the supplementary sprocket the machine worked better.

XQ140. The machine you mention was what machine? the taking machine? that you built at the Latham shop?

A. Yes, that is the one.

2333

XQ141. And is that machine shown in this sketch "Casler's Exhibit Lauste Sketch No. 4?" I mean is the machine shown in said sketch the machine to which Mr. Dickson added his sprocket that you mentioned?

A. Yes; it is marked by the letter E on the sketch.

XQ142. Mr. Dickson told you to put this sprocket on after the machine was finished, or before?

A. After the machine was completed he made that suggestion to Mr. Otway Latham; and Mr. Otway Latham told Mr. Kleinert to do the job—to put the sprocket on, and Mr. Kleinert said that is impossible. And then Mr. Otway asked me if I can do that, and I said Yes. And I do the work.

2334

XQ143. Mr. Otway Latham was the manager of the shop, was he not?

A. There was no manager in the shop.

XQ144. Did he give you instructions; that is, order you to do this or that?

A. No, he did not give me any orders.

XQ145. What was he in the shop for, then; do you know?

A. Just for watching the shop and for watching me.

XQ146. He was almost always there, was he not? and took much interest in the work?

A. Oh, yes.

XQ147. Mr. Dickson would sometimes come to the Frankfort shop where the machine was being built, I believe?

A. Yes, I seen him a few times.

XQ148. Did he have particular days for coming?

A. No, he don't like coming to the shop, he don't work for the company at that time, he worked for Mr. Edison. And Mr. Dickson told me that Mr. Latham wanted him in the company.

XQ149. Before you commenced to work for the Lathams, Mr. Dickson                      you and talked with you and told you the kind of work you were to do in the shop? 2336

A. Well, I go to Mr. Dickson by order of Mr. Latham to get some ideas from him, but I never got any idea.

XQ150. I mean to ask if Mr. Dickson got the job for you with the Lathams?

A. Yes, he did.

XQ151. Did Dickson tell you at that time that a shop in a quiet place was to be found so that the work to be done would not be known by anybody? 2337

A. No; Mr. Latham said that—Mr. Woodville Latham.

XQ152. If I should tell you that at the time you went to work for the Lathams on this experimenting, Mr. Dickson had written a letter in which he said that he had arranged everything with you, that a quiet shop was to be found, close to the ferry if possible, and that great caution should be taken to keep matters quiet, would you think that true?

Mr. Marble: Question objected to as not cross-examination, and also as purely speculative.

2338

A. No, I never got letters like that. But Mr. Otway said that maybe Mr. Dickson come here sometime. We want to get a place near the ferry, because if he comes here he don't have much time.

XQ153. You have testified that you slept in the Frankfort Street shop while the machine was being made; did not Mr. Dickson arrange with you to do that?

A. Oh, no.

2339 XQ154. Will you swear that he did not arrange with you to go to work for the Lathams and leave your family in Newark and live in the Frankfort Street shop to do the work on these machines?

A. No, that is wrong. I swear that is wrong. I asked Mr. Latham if I might sleep in the shop because I have to work very late at night and I have all my furniture in storage in Newark. And Mr. Latham said Yes, and he buy me the bed and the pillow.

XQ155. Please state what was the first work you did in the Frankfort shop on these machines?

A. Projecting machine for experiment with the kinetoscope film,—the standard film.

2340 XQ156. Will you please explain something new about the idea of Mr. Dickson for getting a stop motion in the taking machine; the witnesses in this case having testified that there was a great deal of experiment made by you in the Frankfort shop on that idea of Mr. Dickson's?

Question objected to as not cross-examination.

A. We tried a stop motion, Mr. Dickson's idea, but were only a few days experimenting. I said when I saw the drawing that the thing would not

work, because we needed too much speed and it was no good for that, it was good for a slow motion. That is all I do for Mr. Dickson, that was all the experiment.

XQ157. Please explain a little about the Dickson idea; what he tried to do.

Same objection.

A. Well, I don't know. He talked all the time with Mr. Otway Latham.

XQ158. What did you try for Mr. Dickson?

2342

Same objection.

A. It was a stop motion something similar to the escapement of a watch.

XQ159. Well, at any rate, you thought it would not work just as you thought and so expressed yourself at that time that Mr. Dickson was no mechanic; is that so?

Same objection, and also because it is another hit at Dickson.

2343

A. Yes.

XQ160. Please state at what date or month this idea of Mr. Dickson's was tried in the Frankfort shop?

Same objection.

A. It was a few days before I started the first camera; it was in December—I am not sure.

XQ161. You were present, I believe, when the first taking machine was used on the roof of the

2344

Frankfort Street building. Who operated the machine at that time?

A. Mr. Otway Latham. I fixed it all ready for him, I fixed the films and he run the machine. Mr. Kleinert used it, too; Mr. Otway Latham, Mr. Kleinert and me used the machine.

XQ162. What was the picture you took on the Frankfort Street roof?

A. We took Mr. Woodville Latham, Mr. Kleinert, Mr. Gray Latham, me and my son.

2345

XQ163. When did you leave the Latham shop or the Eidoloscope Company's shop, I mean when did you stop work there for good?

A. November 2, 1896.

XQ164. What did you do then?

A. I went to the American Biograph.

XQ165. That company is the same as the American Mutoscope Company?

A. Yes, that is the same, the American Mutoscope and Biograph Company.

XQ166. Who got you that job?

A. I asked Mr. Dickson, and Mr. Dickson recommended me to Mr. Koopman.

2346

XQ167. Did you know a Mr. Weit who worked at the same place, the American Mutoscope Company?

A. Yes.

XQ168. What did you do—what kind of work, at the American Mutoscope Company?

A. Operator.

XQ169. When you went to work for the Lathams at the Frankfort Street shop, with whom did you arrange for pay? Who was to pay you?

A. Mr. Woodville Latham.

XQ170. Did he pay you all that he agreed to pay you for work on those machines?

A. Yes.

XQ171. Did he increase your pay after you had been there some time?

A. Yes; when the new company started.

XQ172. How much a week did he pay you?

A. Twenty-one dollars a week when I started.

XQ173. Please explain what kind of work you did when you were employed at the Edison Laboratory?

A. All kinds of work; instrument maker, electrician, machinist, pattern maker, everything.

XQ174. Did you know E. W. Kleinert at that time? 2348

A. No.

XQ175. Did you know that he worked at Edison's place at the same time you did?

A. No, he don't work the same time.

XQ176. You, however, knew Mr. W. K. L. Dickson, who was employed there at the same time?

A. Yes.

XQ177. You have testified that Mr. Woodville Latham gave you \$20,000 in stock. Are you quite sure that he gave it to you, or did the company give it to you? 2349

A. Mr. Woodville Latham.

XQ178. What did he give it to you for?

A. For bringing out the idea of the projecting machine.

XQ179. You have spoken of getting work done at Pierce's in John Street. Did you get any work done for these machines at Pierce's without permission of Mr. Woodville Latham or Mr. Otway Latham?

A. I went to Mr. Pierce's with Mr. Woodville Latham, and he said to Mr. Pierce, Do all work that I give to him.

2350

XQ180. It was not Mr. Otway Latham, was it, that you went there with you?

A. The first time it was Mr. Woodville Latham. Afterwards Mr. Otway come, too.

XQ181. You have testified that at one time you went to Pierce's to have some work done and you were there about a week watching the workmen. Is that correct?

A. That is correct.

2351

XQ182. You did not take drawings to the Pierce's of what you wanted, though you were well able to make drawings; is that so?

A. I never bring a drawing; I would make some calculation with the tool maker.

XQ183. You have testified that you tried the taking machine to project pictures with it; that you made one trial only; do you know that Mr. Otway Latham never tried that machine in the developing room?

A. I can't say. When I was working in the shop and he was in the dark room I can't see him.

2352

XQ184. So that machine may have been used for projecting pictures of moving objects without your knowing of it?

A. It could not be used. You could not pass a film. If the machine were made properly for the film it might work all right, but this machine you could not use.

XQ185. When you tried the machine to project, did you use film with pictures taken by the same machine, or did you use Edison's film?

A. With a film taken by that machine, because a kinetoscope film can't go in that machine.

XQ186. Why?

A. The Eidoloscope film is a little bit larger than the Edison film.

XQ187. The sprocket rollers had something to do with this, did they not?

A. Yes; the sprocket is wide, too.

XQ188. The sprocket rollers of this taking machine were made of size to take a wide film, wider than Edison's; is that so?

A. That is right.

XQ189. If special sprocket rollers were made and put in that taking machine, and these sprocket rollers were of size to take the Edison film, would the machine project then?

A. Yes; but you would have to change the principle of the machine then, and the shutter.

2354

XQ190. In order that the Patent Office may be able to judge whether you really understand the theory and principle of machines of this kind, I wish you would explain fully your last answer; explain how that taking machine would have to be altered in principle, and what kind of change in the shutter would have to be made, such changes being necessary in your opinion because, instead of using a wide film, you make use of a somewhat narrower film?

A. I don't understand what you mean. If you have a film to fit the sprocket, the machine works. If you want to use the machine for projecting you have to use a bigger sprocket; the sprocket on that machine was very small, only one inch.

2355

XQ191. What did you mean when you said that to use a narrow film, such as Edison's, for the wider film, which you call the Eidoloscope film, in that machine, that the principle would have to be changed?

A. Yes; the principle of the machine, the shape of the machines.

2356

XQ192. What change would you make in the shape of the machines in such a case?

A. Put a larger sprocket and a new shutter and a sprocket to fit the film.

XQ193. I understand that the sprockets on the sprocket roller would have to be so placed as to fit the holes in the edges of the film, but I do not understand why you should change the shutter. Please explain that; and what change you would make in the shutter when you used the Edison film or narrow film instead of the wider film?

2357

A. The shutter must be different. To take pictures and project pictures are two different things. You can work the machine just the same with the same shutter, but it is no good. In taking pictures there is a vibration of the film, and you have to make calculations for the opening in the shutter to give so much time to bring the film up and so much for the vibration to pass and so much for exposing it. When you project a picture you have to enlarge the opening in the shutter to give more light, and so much darkness to bring the film up.

2358

XQ194. Is it possible to project pictures with a machine having a stop motion without the use of a shutter?

A. Yes, but it is very bad for the eyes; it makes so much flickering.

XQ195. So that the conclusion of the matter is the machine which you have spoken of as the taking machine built by you for Professor Latham in the Frankfort Street shop can be used for projecting pictures if it is fitted with suitable sprocket rollers?

A. Yes, certainly.

XQ196. From your knowledge of this business, is it not a fact that in developing films sometimes

the developing process makes the film longer and sometimes shorter; is that so?

A. Yes.

XQ197. Now, supposing you should find among the Eidoloscope films a film that fit the sprockets of the machine, which you have spoken of as the taking machine, could not that taking machine be used to project the pictures of that film?

A. Yes, for experiment only; but if you were using the machine every day, the sprocket is too small, it has not enough grip and the films would tear very quick.

2360

Adjourned to Saturday, April 30, 1898, 10 a. m.

New York, April 30th, 1898, 10 a. m.

Met pursuant to adjournment.

Present, counsel as before.

Cross-examination of Mr. Lauste continued by Mr. Bowen:

XQ198. When you arrived in this country a day or two ago, you called to see Mr. Marvin, did you?

2361

A. Yes.

XQ199. What did he say to you?

A. He said I was to go to see Mr. Marble and Mr. Marble would explain everything to me, about Mr. Latham's business.

XQ200. You understand, I suppose, that the object of your coming to this country was to give testimony to show that you, and not Professor Latham, was the real inventor of this stop-motion machine, which is the taking machine you have been speaking about; is that so?

2362

A. No; I don't know that before.

XQ201. When you went to Europe on the biograph business, Mr. Dickson went with you, did he not?

A. Yes, we left New York at the same time, 12th of May, 1897.

XQ202. Who paid your expenses on that trip?

A. The Mutoscope and Biograph Company.

XQ203. You were engaged by that Company, the American Mutoscope Company, were you, for that business?

2363

A. Yes.

XQ204. I believe that the work in the Frankfort Street shop was commenced by you in the fall, about October, 1894; is that so?

A. Yes.

XQ205. You have spoken of some experiments that you made to test the value of some ideas of Mr. Dickson. Those experiments were the first that you made after the shop was rented; is that so?

A. No, a long time after; in the summer; pretty nearly everything was done at that time.

2364

XQ206. What was the first work you did in the Frankfort Street shop?

A. The projecting machine for using kinetoscope film for experiment.

XQ207. If Professor Latham, Mr. Otway Latham and others should testify that the first experiments made in the Frankfort Street shop were to test the Dickson ideas, would that be true?

A. No, Mr. Dickson was not there when we made the first experiment—projecting machine; but the first day we tried the taking machine he was there.

XQ208. When was that first trial made with the taking machine, to which you refer?

A. I can't tell exactly; I know it might have been in January or February, at 12 o'clock night.

XQ209. And do you mean to swear that up to that time,—January or February—1895—that Mr. Dickson had never been to the Frankfort Street shop to talk with you about the business you were at work upon?

A. Well, I saw Mr. Dickson a few times, but as to that business he never say anything to me. I do it all myself. He speaks with Mr. Woodville Latham, and Mr. Otway, and Mr. Gray, but he don't say anything to me.

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XQ210. Then it is true, is it, that before the first trial of the taking machine, Mr. Dickson made visits to the Frankfort Street shop where you were at work?

A. Yes, I saw Mr. Dickson, and he told me many times that he don't like coming to the shop, because it is very compromising for him. And he said when I leave Edison's it is all right, I come every day; but before I can not do it.

XQ211. You were and are a warm friend of Mr. Dickson, is that so?

A. Well, yes.

2367

XQ212. He would speak to you in French when he visited the shop; is that so?

A. Speak in French? Yes.

XQ213. Do you remember at any time that Mr. Dickson speaking to you in French, caused Mr. Kleinert to be angry?

A. No, I can't remember; too long a time ago.

XQ214. Other things that occurred quite as far back you remember, however, now, perfectly; is that so?

A. Well, some, yes.

2368

XQ215. What was your relation with Mr. Kleinert; did you agree together? That is, get along well together?

A. Now, when Mr. Latham gave me Kleinert, he gave him to me to sweep the shop, drill some holes and run out and buy the stuff or anything I need; but Kleinert don't do anything—don't do much in the shop. I found, say, after two months, he don't do any work and sleep all day in my bed. And I explained everything to Mr. Latham what he do—nothing, and Mr. Latham discharge him.

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XQ216. You did not like Kleinert, did you?

A. Yes, I liked him; there was nothing bad with him I could find.

XQ217. When did Mr. Latham discharge him? And if you know, where did Kleinert go then?

A. I don't know the date of the discharging; but he went to Waterbury.

XQ218. Can't you state when that was?

A. No, I can't remember.

XQ219. Was it a month, or two months, or more after he came to the shop to work from Boston?

2370 A. I think it was more than two months—I am not sure.

XQ220. Kleinert has testified in this case that he ordered the gear for the stop motion from the Boston Gear Works by the order and upon the direction of Professor Latham. Did he tell the truth?

Question objected to as misleading and an inaccurate statement of Kleinert's testimony.

A. When I explained to Mr. Woodville Latham the idea of the stop motion like the Maltese cross, why, Mr. Woodville Latham said we will adopt this

idea and give order to the Boston Gear Works. And Mr. Kleinert wrote the letter for me because I cannot write good English.

XQ221. The experiments in the Frankfort Street shop extended over considerable time; did they not?

A. Well, yes, I guess so; a couple of months.

XQ222. Will you state whether there was any projecting machine completed in the shop before the completion of the taking machine?

A. Yes, we have five—not finished—but one finished, one worked.

XQ223. Do you remember the exhibition of pictures of moving objects that was given down here on Broadway, in April, 1895?

A. Yes.

XQ224. Well, now, is it not a fact that up to within a day or two of the opening of that exhibition, not one of those projecting machines was fully finished?

A. Yes, fully finished. We experimented every day in Frankfort Street with that machine, the same machine, we used on Broadway. Maybe what you mean by not finished, we had to make some rheostat, some connections; we made that in Broadway.

XQ225. How long before the exhibition of April, 1895, in Broadway, was this one projecting machine finished?

A. It may be a week, or two weeks. We experimented with that machine every day.

XQ226. Now, it appears plain that the taking machine was in course of construction before any of the projecting machines were fully finished. Is that so?

Question objected to as misleading and an incorrect statement of this testimony.

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A. We had one made finished for use with the kinetoscope film; and after that we stopped for the new style wide film, and I started both the taking and projecting machine the same time.

XQ227. And you did most of the work on the taking machine because you were regarded by Professor Latham and his associates as a skilled mechanic; is that so?

A. Yes.

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XQ228. Please look at "Casler's Exhibits Lauste Sketches 2 and 3" and state what difference there is between the gearing of the two machines thereon represented?

A. On Sketch No. 3 I have substituted the elliptical gear for the circular gear, shown on Sheet 2. I have represented the gear by a figure on the left hand sides of these sheets.

XQ229. Are there any other differences between the two machines shown on these Exhibits 2 and 3?

A. That is the only difference.

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XQ230. You have stated that you made the drawing of the taking machine in two hours and started the pattern the same day. When was this?

A. I think it was December, 1894—but I am not sure of it. I am sick in the bed at that time, and I get up and take a piece of paper and made the drawing.

XQ231. Was the drawing which you claim to have made at that time of the taking machine in all respects like the drawing which you made here yesterday and which is marked "Casler's Exhibit Lauste Sketch No. 4?"

A. Yes, except the three gear was replaced by a worm; it was the same thing.

XQ232. What did the worm do, or what was it

intended to do in that alleged original drawing?

A. For reducing the speed from the main shaft to the sprocket E. And the three gears reduces the speed, too; it is the same thing.

XQ233. Please look again at Sketch 4 which you state is like the original drawing which you made in December, 1894, and state whether you notice on that sketch any other features that were not on the original drawing; and I call your attention particularly to the stop-motion gear?

A. It is the same. I made another gear before, a larger one, and I can't remember what we used that for. 2378

XQ234. You made that larger gear?

A. Oh, no; I got the idea from the Catalogue of the Boston Gear Works and we give the order to the Boston Gear Works.

XQ235. Was this larger gear obtained by you or received at the shops, before you made the original drawing of which you say Sketch 4 is a copy?

A. Yes, we ordered that gear before that time.

XQ236. And in the original drawing of which Sketch 4 is a copy, and which you got out of a sick bed to make, there was shown, I understand you to say, the stop-motion gear shown on Sketch 4 at the left? 2379

A. Yes.

XQ237. And this drawing, of which Sketch 4 you state is a copy, was made by you in December, 1894; is that true?

A. Yes—I can't say sure. I think it was December; I can't remember the date.

XQ238. I didn't ask you for the date. I want to know what month and year that drawing was made by you, as alleged?

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A. It is the same thing—I don't remember. December, 1894, or January. I can't tell exactly.

XQ239. You perhaps can tell whether you made the drawing, of which Sketch 4 is claimed to be a copy, before or after the taking machine was constructed?

A. Yes; I make a drawing before and I make one after.

XQ240. Did you make the drawing like Sketch 4 before the construction of the taking machine?

A. Yes; with the worm in place of the gear.

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XQ241. That was the only difference?

A. The only difference.

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XQ242. You have stated that the first projecting machine that you made had a motor on the top, and is shown in "Casler's Exhibit Sketch 1." That you afterwards commenced to build another projecting machine which is shown in "Casler's Exhibit Sketch 2." You have testified this morning that you commenced the making of this second projecting machine at the same time that you commenced the work on the taking machine which is supposed to be represented in "Casler's Exhibit Sketch 4." Now, state what month and year you commenced the making of projecting machine shown on Sketch 2, which was the second projecting machine started, and commenced the making of the taking machine, begun, as you say, at the same time?

A. I started the pattern for the projecting first; and after the projecting I started the taking machine; and a month or year—December or January—a short time after Kleinert come. Between the machines shown on Sketches 1 and 2 I started another one. But when Kleinert come he objected there was too much work on it and said better make

2383

something similar to the kinetoscope. We could put in the worms and gear from the kinetoscope shop and we could build it quicker with that.

XQ243. In answer to question 73 you state that the taking machine, referred to in this case, was made for the purpose of taking pictures "forty a second." Is it necessary, in your opinion, that a machine for taking pictures of moving objects should be so constructed that the pictures would have to be taken forty a second?

A. Yes; you can take less if you want; fifteen or twenty, but you get flickering.

2384

XQ244. In a taking machine of this character, the number of pictures taken per second depends upon what in the operation of the machine?

A. Upon the stop-motion. The speed.

XQ245. In your direct-examination I notice that you made no reference to Mr. Dickson's ideas that you first experimented on when you commenced to work for the Lathams. What was your reason for this?

Question objected to as not cross-examination and as immaterial and irrelevant.

A. Of course, Mr. Dickson did not say anything, he did not have any idea.

2385

Cross-examination closed.

Recess until 2 p. m.

2 p. m.

Re-direct Examination by Mr. Marble, without waiving objections.

RDQ246. In your cross-examination you mention the fact that Mr. Dickson added a sprocket

2386

to the machine which you had made for Mr. Latham for taking pictures. Is that sprocket represented in the sketches which you made and which has been marked "Casler's Exhibit Lauste Sketch No. 4?"

A. Mr. Dickson had nothing to do with the sprocket. I don't understand.

2387

RDQ247. You have said in your cross-examination that Mr. Dickson suggested a supplementary sprocket. And what I want to know is whether that supplementary sprocket is represented on the sketch you made as a reproduction of a drawing which Mr. Latham took away and which has been marked in this case "Casler's Exhibit Lauste Sketch No. 4?"

A. Yes, it is represented by the letter E'.

RDQ248. You have testified in effect that you put on to that machine which you built for Mr. Latham this sprocket which Mr. Dickson suggested. And you say that the machine worked better after it was put on. What do you mean by that?

2388

A. Well, I mean by that that the top reel working by friction, and before pulled the film direct from the loop and after that the second sprocket put in, the main loop is free of pulling, and all friction pulled the second loop on top. Sometimes the second loop would jump, but the first loop is all right it keeps still.

RDQ249. After you had put on this supplementary sprocket, the film was not torn so much in passing through the machine? Is that so?

A. Yes.

RDQ250. Can you tell us about when it was that Mr. Dickson made this suggestion when that sprocket was put on the machine?

A. I guess that was after we take the picture of Griffo & Barnet; I can't be sure.

RDQ251. It was along in the spring or summer of 1895, was it not, that he made that suggestion?

Objected to as leading.

A. In the spring.

RDQ252. Before you put that sprocket on the machine, were the films torn in passing through the machine?

A. Well, they would tear sometimes.

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RDQ253. This tearing of the film interfered with the taking of pictures, I suppose; how was that?

A. You can't get any picture if the films tear.

RDQ254. State whether Mr. Woodville Latham suggested any means for preventing the tearing of the films when you were taking pictures?

A. I don't remember any.

RDQ255. During your cross-examination, you were inquired of about Mr. Otway Latham, and his presence at the shop. Did Mr. Otway Latham do anything while he was at the shop except stand around and look on?

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A. That is all he did, except when the machine was done, the projecting machine was done, he used the machine for projecting, for experimenting.

RDQ256. What projecting machine do you refer to?

A. The first one with the kinetoscope film in.

RDQ257. That was a different machine from the taking machine, was it not?

A. Yes, sir.

RDQ258. You were asked on cross-examination, as well as on direct-examination, about your sleep-

*Lauste, Interference Deposition.*

2392

ing in the shop where this taking machine now "Latham's Exhibit No. 12" was constructed. Where did you get your meals?

A. In the shop too. My son cooked for me.

RDQ259. Didn't you go out of the shop or building where the shop was at all?

A. No, I never go out of it, except across the street to get the stuff.

RDQ260. You have testified that this taking machine or camera could not be used for a projecting machine and have given your reasons why.

2393 Could Mr. Otway Latham make this machine work where you could not as a projecting machine?

Objected to as incompetent.

A. No. I suppose if he do that he is smart.

RDQ261. How is the dark room situated with respect to what you term the shop?

A. They are just across a very small hall from each other.

RDQ262. How large was this dark room?

A. About ten feet wide and twenty-five or thirty feet deep.

2394

RDQ263. You were in a position, were you not, to know, and did know when this taking machine was used from the time that it was finished until November 2, 1896, when you left the employ of the Eidoloscope Company?

A. Yes.

RDQ264. You say you are forty-one years old. How long have you been working as a mechanic?

A. About twenty-three years.

RDQ265. Prior to your going to work for Mr. Latham, had you ever worked upon or constructed a machine so complex as a projecting machine, or a taking machine?

A. Oh, yes.

RDQ266. Please name some of the machines you had worked upon or constructed before you went to work for Mr. Latham?

Objected to as not re-direct examination.

A. Well, for Mr. Edison I make some electrical instruments, very fine work and I make a slot machine, my own idea, too; and I make money with it too. And I make an engraving machine for a watch case. I make too a gasoline engine; if I say everything I won't have enough paper. 2396

RDQ267. From the time that you put the supplementary sprocket on this machine, up to the time you last saw said machine, I mean the machine you made for Mr. Latham, now "Latham's Exhibit No. 12," were there any changes made in the sprocket or shutter?

A. No.

RDQ268. Was there ever any change made in that machine from the time you constructed it up to the time you put on this supplementary sprocket suggested by Mr. Dickson?

A. No, no change. 2397

RDQ270. The company that exhibits biographs in London and Paris, is a different company, is it not, from the company which is located in this city at 841 Broadway, New York?

A. Well, I guess so; there are different people, but it is impossible for me to tell.

RDQ271. How long have you been in the employ of the London Company?

A. Nearly a year. Since last May.

RDQ272. I thought I had already asked you, but I do not find that I have, who invented the

*Lauste, Interference Deposition.*

2398

machine or apparatus shown on the sketch "Casler's Exhibit Lauste Sketch No. 4?"

Objected to as not proper re-direct examination.

A. Why, I did, but I never did anything without letting Mr. Latham know.

Re-cross Examination by Mr. Bowen:

2399 RXQ273. You have stated that the extra sprocket was placed on "Latham Exhibit No. 12" after the Griffo-Barnett boxing match was photographed. State whether you witnessed the taking of that picture, and if so, was it not successfully taken and without the film breaking?

Question objected to as incorrectly stating what the witness has testified to.

A. Yes, I saw the picture taken. We got quite a good picture; we had breaks and would have to stop and take the picture again.

2400 RXQ274. You swear positively, do you, that you were present on the Madison Square Roof and witnessed the taking of the Griffo-Barnett fight by the Latham taking machine "Exhibit No. 12," the first machine?

A. Yes, Mr. Dickson take the picture himself.

RXQ275. You have spoken of no changes having been made at any time from the finishing of the taking machine to the time you last saw it, except the addition of the supplementary sprocket. Please state whether you ever knew of the Edison film being run through that machine for any purpose at any time?

Objected to as not re-cross examination.

A. No, you can't do it; impossible.

RXQ276. Do you remember that any time the Edison film was run through the taking machine in question before the machine was used for the first time for taking pictures?

A. No, we used an eidoloscope film; that is impossible.

RXQ277. You have stated with some degree of positiveness that no changes were ever made except one in the taking machine from the time it was finished until you left the employment of the Eidoloscope Company, November 2, 1896. Do you remember that in the spring or summer of 1895 Mr. Otway Latham carried the machine in question—the taking machine—to Mexico, and was gone some time with it, and you remained here?

2402

A. No, I never heard that Mr. Otway went to Mexico. I went with Mr. Gray to Mexico and we took a bull fight and the Mexican drill; that is all. I think if Mr. Otway went to Mexico I would know something about it, but the machine never went out of the shop. I knew he went to Niagara Falls.

2403

RXQ278. When Mr. Otway went to Niagara Falls did he take the taking machine with him?

A. Yes, and he went with Mr. Weit.

RXQ279. You stayed in New York when Mr. Otway Latham went to Niagara Falls?

A. No, I was in Mexico at that time.

RXQ280. And you went to Mexico with Gray Latham, I believe you carried with you two machines, that were like the first taking machine?

A. Two new ones made especially for that bull fight.

RXQ281. Two new ones like the first machine?

A. Yes, more strong, much better.

*Lauste, Interference Deposition.*

2404

RXQ282. You say you were in Mexico when Mr. Otway Latham carried the first taking machine to Niagara Falls. How do you know that he carried it to Niagara Falls?

Objected to as not re-cross examination.

A. Why, because he told me, and Mr. Weit told me.

RXQ283. What year was that visit made to Niagara Falls, and you were in Mexico?

2405

Same objection.

A. 1895. I forget which month.

Examination of witness closed.

EUGENE LAUSTE.

2406

**Complainant's Exhibit M.**

2407

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

<p>MOTION PICTURE PATENTS Co., Complainant, vs. INDEPENDENT MOVING PICTURE Co. OF AMERICA, Defendant.</p>	}	<p>In Equity, No. 5-167.</p>	2408
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**COMPLAINANT'S EXHIBIT.**

**Woodville Latham's Deposition in  
Armat Interference.**

IN THE UNITED STATES PATENT OFFICE.

<p>In the Matter of The Interference between the Ap- plications of EDWARD H. AMET, filed Oct. 22d, 1896, WOODVILLE LATHAM, filed June 1st, 1896, HERMAN CASLER, filed Feb. 26th, 1896, and THOMAS AR- MAT, filed Feb. 19, 1896. Subject: Apparatus for Project- ing on a Screen Pictures of Moving Objects.</p>	}	<p>Before the Commissioner of Patents. Interference No. 18,461.</p>	2409
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Depositions of witnesses examined on behalf of  
Woodville Latham, pursuant to the annexed  
notice, before John A. Shields, Esq., United States

*Latham, Interference Deposition.*

2410

Commissioner, at his office in the Post Office Building, in the City of New York, on Saturday, the 4th day of December, 1897 (the place of examination of witnesses having been changed by consent).

Present—J. E. M. BOWEN, Esq., on behalf of Woodbury Latham.

E. M. MARBLE, Esq., on behalf of Herman Casler.  
THOMAS ARMAT in person.

No appearance on behalf of Amet.

2411

WOODVILLE LATHAM, being first duly sworn, doth depose and say, in answer to interrogatories propounded to him by J. E. M. Bowen, his counsel, as follows:

Q1. What is your name, age, residence and occupation?

A. Woodville Latham; age, 60; residence, New York City; occupation, I am a chemist by profession.

2412

Counsel for Latham states that Mr. Dowell, representing Mr. Armat, requests that on account of his inability to be present this morning, his right to cross-examine the witnesses that may be examined be reserved and also his right of objection, to all of which counsel for Latham consents.

Q2. State if you are a party to this interference proceeding?

A. I am.

Q3. The issue involved in this interference is stated in the official letter of declaration of January 23, 1897, as follows:

"In a picture exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

2414

Please state whether or not the invention, as defined by said issue, was devised by you, and if so, state when you first conceived the same?

A. An invention of that description was devised by me and I first conceived of the invention in a general way in July or August, 1894.

2415

Q4. State the circumstances under which the subject matter of the invention was first brought to your attention?

A. Two of my sons were engaged at 83 Nassau Street in the business of exhibiting pictures by the use of the Edison Kinetoscope. A day or so after they began the exhibitions, one of my sons came to me and asked if I could not devise a machine for projecting the pictures upon a screen. He said

2416

that a number of the spectators in his hearing had expressed a wish that something of that sort might be done, and subsequently I heard from spectators, myself, similar expressions. I said to my son that I had not the slightest doubt of my ability to do what he had suggested, and I immediately began to consider plans for the construction of such apparatus.

Q5. When was this, give the month and year?

2417

A. It was in the summer of 1894. My impression is that it was in the month of July; it may have been in the month of August. I could satisfy myself as to this matter my finding out just when those kinetoscope exhibitions began at 83 Nassau Street.

Q6. State what you did toward developing the conception in the summer of 1894?

2418

A. It seemed to me that nothing was necessary for the projection of pictures of movement upon a screen but the combination of a magic lantern with an appliance similar to Edison's Kinetoscope for running the picture strip continuously across the optical axis. But I was aware that it would be necessary to provide pictures for such apparatus and I did not believe that pictures could be photographed clearly on a continuously running strip. Immediately, therefore, I began to consider what device might be best for arresting the movement of the film intermittently. From time to time I made drawings of one device and another and showed them to my sons, but we had no money then for the manufacture of such apparatus as we contemplated, and it was not until about the first of November that we made arrangements for the construction of the machine. I think I ought to add here, however, that so early as September and con-

2419

tinuously afterwards till November we exerted ourselves to provide means for the construction of the apparatus and that we secured the necessary means in time to begin operations about the first of November.

The answer is objected to as irresponsible.

Q7. You have stated that you made drawings in the summer of 1894. Please state the nature of such drawings and whether they were shown to any one and also state whether at that time you disclosed the invention to any one and name such person?

2420

Question is objected to because it calls for secondary testimony, the drawings themselves being the best testimony and their absence or loss not having been accounted for.

A. I have already stated that I made drawings illustrative of my notion as to how such apparatus might be constructed, that from time to time I showed those drawings to two of my sons. Their names are Gray Latham and Otway Latham. I will state further that at a later time, but prior to the 1st of November, 1894, I repeatedly showed such drawings to W. K. L. Dickson. Of course the exhibition of the drawings was a disclosure of the invention. The drawings were illustrations of a machine for projecting pictures of movement upon a screen end for photographing such pictures by intermittent movement of the film across the optical axis. The period of movement being greatly less than the period of pause and exposure.

2421

Q8. What became of the drawings which you state you thus made?

*Latham, Interference Deposition.*

2422

A. They were of such an extremely simple sort and so easily reproduced that they were destroyed after they had been employed to convey my thought to the aforementioned gentlemen. Such working drawings as were made from the first of November on were left in my shop at 101 Beekman Street. The shop and its contents subsequently passed into the possession of a company calling itself the Eidoloscope Company. Where the drawings now are I am unable to say.

2423

Q9. Please state briefly what arrangements you made, if any, previous to November, 1894, for developing the invention which you have stated you had devised?

2424

A. I have already stated that I exerted myself to provide the necessary pecuniary means. In the month of October, and possibly also in the month of September, a number of experiments were made by me and under my direction with the view of determining the conditions of successful projection of pictures of movement. The apparatus employed for this purpose was in part apparatus furnished by W. K. L. Dickson from the laboratory of Thomas A. Edison. I succeeded in securing from the South what money was required, purchased machinery, set it up in the shop, at 35 Frankfort Street, New York City, and employed a workman on the recommendation of Mr. W. K. L. Dickson. Mr. Dickson's assistance was in the beginning merely a friendly assistance without any arrangement for compensation to him. He had previously become well acquainted with my sons Gray Latham and Otway Latham, and his personal friendship for them was perhaps the influence that operated on him in the beginning, but subsequently, just when I am unable to remember, my sons agreed with

him that he should have for whatever services he might render, provided they resulted in the construction of thoroughly satisfactory apparatus for photographing, printing, developing and projecting pictures of movement one fourth of the stock of a company to be organized for the manufacture, sale and use of such appliances.

The answer is objected to as irresponsible and indefinite.

Q10. Now after having disclosed this invention to Mr. Dickson, and after having taken a shop for developing it, what did Mr. Dickson do toward developing the invention with reference to its embodiment in an apparatus, and state when? 2426

The question is objected to because it calls for immaterial and irrelevant testimony, Mr. Dickson not being a party to this record, and not in any way interested in this case.

A. Mr. Dickson suggested an arresting device, and though I did not believe that it would operate effectively, and though it was not the belief of the mechanic, whom I had employed on Mr. Dickson's recommendation, that the device would be operative, it was constructed and tried. I failed utterly to accomplish its purpose in any satisfactory manner. During the months of November and December it was Mr. Dickson's habit to come over to the shop at 35 Frankfort Street from his home in Orange, N. J., one night in every week professedly to direct Eugene Lauste, the one mechanic in my employ, in his work of carrying into practice the 2427

*Latham, Interference Deposition.*

2428

aforementioned idea of Mr. Dickson for intermittently arresting the movement of the film. The manufacture of the device itself required only a few days. The remainder of the time was devoted by the mechanic to the construction of the other parts of the apparatus, about which there had never been any question.

Q11. State as briefly as you can the nature of this device suggested by Mr. Dickson?

Same objections.

2429

A. It was in the nature of two horizontally oscillating arms intended intermittently to pass between the teeth of the gear wheel belonging to the axis the drum carrying the film so as to check intermittently the revolution of that axis.

The answer is objected to as immaterial and irrelevant and indefinite.

Q12. Was this device which you have described embodied in your machine then under construction?

2430

Question objected to as leading.

A. I don't understand the question. I think possibly I may understand it. When the device had been made it was connected with a revolving gear wheel with the view of finding out whether or not the revolution of the gear wheel shaft could be checked at very short intervals without a vibration of the whole apparatus that would defeat the purposes for which it was being constructed.

Q13. State whether the experiment you have just

mentioned was satisfactory to yourself and Mr. Dickson?

Question objected to because it calls for immaterial and irrelevant testimony and for the conclusion of the witness and does not call for a statement as to what the device did do or could do, which is the only matter material to this case.

A. I rejected the device as unsatisfactory to me. My recollection is that Mr. Dickson was still persuaded that the device would operate if the mechanic were to construct it with greater care and skill. 2432

The answer is objected to as immaterial and irrelevant.

Q14. Where was the shop located where this experiment was made?

A. In what is known as the Scott building, at 35 Frankfort Street, New York City, on the fourth floor of that building.

Q15. And in what month did the experiment take place? 2433

Same objection.

A. I have already stated that in the month of October and possibly in the month of September, there was experimentation with the use of what I was told by Mr. Dickson was the original model of the Edison Kinetoscope. Such experimentation had for its object the determination of what intensity of light the projection of pictures of move-

*Latham, Interference Deposition.*

2434

ment required and what were the best forms of condenser to be employed, as well as what objective would be most suitable for the purpose in view. It was not until about the 1st of November that I began the construction of a machine in accordance with previous conception—previous except that, not even then had I determined upon any one form of arresting device to the exclusion of others.

The answer is objected to as irresponsible and indefinite.

2435

Q16. After having discarded Mr. Dickson's idea of an arresting device what did you next do and when toward the completion of that part of the machine?

A. About the 1st of January, 1895, I directed E. W. Kleinert, whom I had had in my employ a month or more, as an assistant to Eugene Lauste, the mechanic heretofore mentioned, to order for me from the Boston Gear Works, Boston, Mass., an appliance known as the Geneva stop. It is a kind of broken gear. I submit a bill for that gearing.

2436

It is the gearing that I employed a few days after its receipt and that I finally adopted and retained. The device is represented at Fig. 5 of the drawings forming part of my application in this interference.

The paper produced by the witness is objected to as indefinite and immaterial.

Counsel for Latham offers the bill referred to by the witness as an exhibit in the case and the same is marked "Latham's Exhibit No. 1, December 4, 1897, J. A. S., Com'r."

Q17. I notice that the bill Exhibit No. 1 is dated January 7, 1895. State when the gear in question was received at your shop?

A. To the best of my knowledge and belief it was received on the 8th of January, 1895, the day after it was shipped from Boston.

Q18. State whether the gear was embodied in the machine and by what workman?

A. It was, by the workman Eugene Lauste, with the assistance of the workman, E. W. Kleinert.

Q19. Now state whether or not the machine as provided with such gear operated satisfactorily so far as regards the intermittent motion. 2438

Question is objected to as leading and as calling simply for the opinion or conclusion of the witness; the proper inquiry would be what the thing did, how it worked.

A. I have already stated, as a matter of fact, that I did adopt and retain the device made for me in Boston, which I certainly would not have done if a device better in my estimation for the purpose in view had up to that time been suggested to me. 2439

Answer is objected to as irresponsible.

Q20. Did this stop motion device operate satisfactorily when you first used it?

Same objection.

A. It did.

Q21. State whether the apparatus, as finally completed embodied the gear stop motion device

*Latham, Interference Deposition.*

2440

that you have described, and state whether the apparatus was used for taking pictures and when?

Same objection.

2441

2442

A. It was satisfactory. The first picture that was photographed with the machine was photographed on the night of February 26-27, 1895. The photograph then made I submit with a statement attached in the handwriting of my son Otway Latham. "This is the carbon of an electric light," and with a note from Mr. W. K. L. Dickson also attached in these words: "To my friend, Mr. Woodville Latham. Compliments of W. K. L. Dickson. February 26-27, 1895. Midnight." This little strip of pictures with the two papers attached were brought to me at the Bartholdi Hotel the same night after I had retired, and was thrown into my room. The photographs were made by my son Otway Latham and Mr. W. K. L. Dickson working together in my employ and under my general direction. Subsequently, near about the first of March photographs were taken with this machine on the roof of the Scott Building, at 35 Frankfort Street of Eugene Lauste, his son Emile Lauste, E. W. Kleinert, my son Gray Latham and myself. My son Otway Latham, operated the machine. All except myself of those who were photographed were in active movement dancing and scuffling within the field of the machine. I sat smoking a pipe, and the photographs were afterwards exhibited on a screen to thousands of people in New York City, and smoke from my pipe plainly appearing upon the screen. With the same machine on May the 4th, 1895, photographs were taken on Madison Square Roof Garden of a boxing

*Latham, Interference Deposition.*

2443

contest between the prize fighters Griffo and Barnett. These pictures were also subsequently exhibited on a screen to a great many people in New York City. On May the 5th, 1895, the New York *Mercury* published, without my knowledge or consent, or suggestion in any way, a notice of the photographing just referred to, which I submit. On April the 21st at the shop heretofore referred to in the Scott building at 35 Frankfort Street a number of persons witnessed the projection upon a screen of the pictures of the Griffo-Barnett contest just referred to. Among them a reporter from the N. Y. *Sun* and an artist from the same paper. I submit an account of this exhibition published in the *Sun* of April 22, 1895, together with an account of an interview with Mr. Thomas A. Edison claimed to have been had by a representative of the *Sun*. From April the 21st a great many pictures were taken with the apparatus referred to.

2444

The answer is objected to as irresponsible and immaterial.

Counsel for Latham offers in evidence the strip of film and attached memoranda referred to in the witness's last answer and the same is marked "Latham's Exhibit No. 2, J. A. S., Com'r, December 4, 1897."

2445

The offering and receipt of these exhibits is objected to as immaterial and irrelevant.

Counsel for Latham also offers in evidence the clipping of the New York Sunday *Mercury* of May 5, 1895, referred to by the witness and it is marked "Latham Exhibit No. 3, Dec. 4, 1897, J. A. S., Com'r."

The same objection is made to this exhibit as was made to the offering of the last.

*Latham, Interference Deposition.*

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2446

Counsel for Latham also offers in evidence a clipping from the N. Y. *Sun* of April 22, 1895, referred to by the witness and the same is marked "Latham Ex. No. 4, J. A. S., Com'r, Dec. 4, 1897."

Same objection as to Exhibit No. 2.

Recess until 2 p. m.

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2447

After recess.

Q22. Referring to Latham Exhibit No. 3 state whether or not the clipping comprising that exhibit was cut by yourself from the New York Sunday *Mercury* of May 5, 1895, and has been in your possession ever since?

Mr. Marble: The question is objected to as leading and also as it calls for immaterial and irrelevant testimony.

2448

A. It has been in my possession since and my recollection is that I cut it from the paper myself. About this, however, I am not certain; in other words I am not willing to swear that it did appear in the New York *Mercury* of May the 5th.

Q23. Did you witness the fight on the Madison Square Garden roof which you state occurred May 4th, 1895, and was taken by your machine embodying the invention of this interference?

Same objection by Mr. Marble and also because the question is suggestive.

A. I did.

*Latham, Interference Deposition.*

2449

Q24. State whether or not the clipping Latham Exhibit No. 4 was cut by you from the New York *Sun* of April 22d, 1895?

Same objections.

A. It was cut from the *Sun* by me.

Q25. Now state whether or not the pictures exhibited by the machine mentioned in Exhibit No. 4 were taken on the first machine which you built embodying the stop motion mechanism of the issue of this interference concerning which you have testified? 2450

Same objections.

A. They were.

Q26. Please state whether the machine which was employed for projecting the pictures referred to in said Exhibit No. 4 was a stop motion machine?

Same objection.

A. It was not.

2451

Q27. Will you now state the difference between a taking and a projecting machine in this art as you understand the matter?

A. The difference is that in photographing pictures it is necessary to have the film at rest for a longer time than is necessary for a picture to produce an impression on the eye, so that while a machine with a continuously running film may be employed successfully to project pictures it is doubtful if such a machine could be employed in photographing pictures. The difference therefore is

*Latham, Interference Deposition.*

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that the photographing machine includes some arrangement for intermittently stopping the movement of the film across the optical axis, whereas a machine for projecting may be either the same appliance organized for the purpose or the same appliance minus the arresting device.

Mr. Marble: The answer is objected to as irresponsible.

2453

Q28. State whether or not the machine with which you state the pictures were taken that were projected by the machine described in Exhibit No. 4 could be employed to successfully project the pictures taken by it and whether or not it was ever so employed by you?

Mr. Marble: The question is objected to as leading and misleading.

A. It could be so employed, and was, as a matter of fact, so employed by me in the month of January or February, or both, 1895.

2454

Q29. State where?

Same objection.

A. In the Scott building, 35 Frankfort Street, New York City.

Q30. State who witnessed such projection by the machine in question?

Mr. Marble: Objected to as leading and immaterial.

A. The only person that I can remember with certainty is my son, Otway Latham. There were

*Latham, Interference Deposition.*

2455

other persons who saw the projection, but I am not able now to state positively who they were.

Q31. Will you now state why you reserved the machine concerning which you have been testifying as a taking machine and did not use it generally for projecting?

A. Because the life of a film used in a machine where the film is moved continuously is greatly longer than in a machine where the movement is intermittent. The films are expensive, and it was desirable to make them when employed for projection last as long as possible.

2456

Q32. Where did you first give a public exhibition of a projecting machine using pictures of moving objects taken by the apparatus of which you have been testifying and which embodied the invention of this interference?

Mr. Marble: The question is objected to as leading and suggestive.

A. My answer depends upon what is meant by the word "public." On the night or afternoon of June the 21st, 1895, as I have already stated, an exhibition of such pictures was made and was witnessed by a number of gentlemen, newspaper representatives and others. The first exhibition, however, that was made for pay, and to which the public generally had access, was made at 156 Broadway, in a room provided for the purpose on May the 20th, 1895.

2457

Q33. State whether or not the pictures of the Griffo and Barnett fight, of which you have testified, were exhibited at 156 Broadway at the time stated?

Same objection.

2458

A. They were, as were also the pictures previously exhibited in the Scott building, on April the 21st preceding.

Q34. Prof. Latham, do you regard yourself as an expert in the art to which this interference relates and in answering this question please state briefly whether your pursuits in the past were such as to qualify and equip you to successfully develop this art?

2459

A. I suppose I may fairly lay claim to special qualification by education and experience for understanding the conditions under which pictures of movement may be photographed and projected. I was educated at Columbian University, formerly Columbian College, Washington, D. C., and at the University of Virginia. My earliest tastes were for scientific subjects and the chief object of my college courses was to qualify me for the profession of civil engineering. During the late war I was executive officer of the Columbus, Georgia, arsenal, one of the largest in the South. I had the direction in large measure of the work of some twelve or fifteen hundred employees, skilled mechanics and others. I was selected without suggestion from myself or friends by the chief of ordnance of the confederate government shortly before the termination of the war to make arrangements for the construction of powder works in the neighborhood of Lynchburg, Virginia, for the supply of powder to Gen. Lee's army in anticipation of his being compelled to withdraw from before Richmond. Shortly after the war I was appointed by the Baltimore & Ohio Railroad to the position of resident engineer on the Pittsburgh and Chicago branch, which was then about to be put to contract. Circumstances forced me to decline to ac-

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cept that position. Subsequently I was professor of chemistry and physics for five years at the University of West Virginia. Later still I was professor of general and applied chemistry at the University of Mississippi. Questions concerning the manufacture of photographic and projecting apparatus are questions of mechanics, optics, chemistry, and, to some extent, of physiology, and these are such questions as I have been interested in theoretically and practically to considerable extent from my early boyhood.

Q35. To go back a step, I wish you would look at the letter which I hand you on the letter head of J. B. Colt & Co., and state whether or not you received that letter about the date it bears, December 18, 1894, and state the occasion for the letter having been written to you (handing witness letter)?

2462

Mr. Marble: Objected to as leading.

A. I did receive the letter on or about December the 18th, 1894. It is a written memorandum of a verbal understanding that I had had with J. B. Colt & Company the day before. The understanding was that J. B. Colt & Company were to supply me with five projection lanterns and other things, at the earliest possible moment, certainly within thirty days. The lamps and the other articles mentioned were to be used with projection apparatus already made or so nearly completed as that I felt confident that they would be completed by the time I received the lamps.

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Counsel for Latham offers the letter in question in evidence, and it is marked La-

*Latham, Interference Deposition.*

2464

tham Exhibit No. 5, J. A. S., Com'r, December 4, 1897.

Mr. Marble: The offering and receipt of the exhibit is objected to as immaterial and irrelevant.

Q36. I now hand you a bill and statement, which please examine and state to what they relate, and whether you received the same on or about the dates they bear, namely, January 14th and February 1st, 1895 (handing witness paper)?

2465

A. They relate to the same matter that the last exhibit relates to, Exhibit No. 5, and the goods were received about January 14th or 15th, 1895, and were for five projection machines, which, to the best of my recollection, were then completed.

The bill and statement just referred to are introduced in evidence by counsel for Latham and marked Latham Exhibit No. 6, J. A. S., Com'r, December 4, 1897.

2466

Q37. What was the name of the company which you organized to carry on the manufacture of your inventions in this line?

A. It was called the Lambda Company.

Q38. State whether or not the machinery and appliances in the shop that you have mentioned were turned over to said company?

Mr. Marble: Question objected to as leading.

A. They were.

Q38½. State whether or not the original machine embodying the stop motion appliance form-

*Latham, Interference Deposition.*

2467

ing a feature of your application for patent involved in this interference was turned over to said company?

Mr. Marble: Question objected to as leading and suggestive.

A. It was.

Q39. Now, state whether, at that time, Mr. Dickson was connected with your company?

Mr. Marble: Objected to as immaterial and irrelevant.

2468

A. He was not precisely, though it was expected that he would become a member of the company. My sons and I were under promise to him that if the machinery which he claimed to be able to have constructed at once without experimentation should prove to be efficient we would give him as compensation for his services one-fourth of the stock of the company which we expected to form. The company was organized some time in December, 1894, and at that time Mr. Dickson had not complied with his promise because the device for interrupting the movement of the film had proved to be inoperative. Later, however, sometime in the month of January, I think, one-fourth of the stock of the company was assigned to Mr. Edmond Congar Brown, and this for the reason that when, after having had a number of verbal understandings with Mr. Dickson, and after having found that he had not come to the point of even beginning to do the things he had promised, an arrangement was made under which my son, Otway Latham, met Mr. Dickson and his wife at some place in New

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York, not now known to me, in the presence of Mr. Edmond Congar Brown, Mr. Dickson's attorney, and Mr. John Murray Mitchell, attorney for myself and sons, at which meeting Mr. Edmond Congar Brown undertook that Mr. Dickson should do the things previously promised by him, and that the consideration for such service of one-fourth of the stock of the Lambda Company should be assigned to Mr. Brown rather than to Mr. Dickson. Mr. Dickson explained that as he was then in Mr. Edison's employ he did not wish, by entering into the contract directly, to place himself in a position where the propriety of his action might be questioned by Mr. Edison or others. Mr. Dickson declared that the devices he was able to construct and would construct for us were devices that he had invented at a time and place and under circumstances such as to give Mr. Edison no shadow of title to them.

2471

Q40. Please state whether the Lambda Company continued to remain the owner of the equipment of the shop as purchased, and if not, what disposition was made of the same?

2472

Same objection.

A. The Lambda Company, after existing about a year, sold out to a company calling itself the Eidoloscope Company, with shops and offices at 101 Beekman Street, and the machine embracing the subject matter of this interference became the property of the said Eidoloscope Company. Whether that company is at present in existence or not I am unable to say, but I have reason to believe that the machine referred to is at this time in the shop at 101 Beekman Street, top floor.

Mr. Marble: The answer is objected to as irresponsible.

Q41. Who conducts the shop or place of business now at 101 Beekman Street?

A. I do not know of my own knowledge, but I am informed that it is conducted by parties who are manufacturing or at any rate who have something to do with the apparatus Mr. Armat claims to have invented.

Q42. State whether you have made any effort to ascertain the whereabouts of this original machine and what effort? 2474

A. I have made no special effort but have made inquiry in one or two quarters, and the information I have received has led me to the conclusion just now stated that the machine is in the possession of the parties who now have the quarters at 101 Beekman Street, formerly occupied by the Eidoloscope Company and previously occupied by the Lambda Company. The machine was repeatedly employed by the Eidoloscope Company in photographing pictures and is a machine of superior construction. It is an extremely valuable machine and I regard it as certain that it has been preserved carefully. 2475

Counsel for Casler in view of the statement of the witness in his last answer that he has made no effort to get the possession of the machine he has so frequently referred to in his testimony although he is certain it is in existence in the city of New York, at 101 Beekman Street, objects to all the testimony that the witness has given in relation to said machine as secondary and gives

*Latham, Interference Deposition.*

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notice that he shall make a motion to strike all this testimony out of the record because it is not the best evidence according to the witness's testimony.

Q43. State whether you have at present any control over the machinery or equipment of the shop at 101 Beekman Street and whether you have any means of access to said shop?

2477

Mr. Marble: The question is objected to because it calls for incompetent testimony in view of the witness's last answer. A man who does not try to do anything rarely accomplishes anything.

2478

A. I have no control whatever. I have no access to the shop; my relations with the members of the Eidoloscope Company who are reported to have entered into business relations with the parties who I am now informed have charge of the shop and the machinery referred to are decidedly hostile and a member of that company, Mr. P. B. Veiller, who is, I judge, from the appearance of his name upon the directory of the building at 101 Beekman Street, the man from whom it would be necessary for me to secure access to the machine is a man with whom I am not even on speaking terms. I should be glad to have the machine produced if there were any way in which I could force the present possessors of it to consent to its production.

Q44. Will you make further inquiry and effort to ascertain the whereabouts of the machine in question, and endeavor to have it produced?

A. I should be glad to do so if I knew how to take one single step in that direction. Acquaint-

*Latham, Interference Deposition.*

2479

ances of mine have told me that under circumstances under which it was utterly impossible to imagine that their visits were for any other than honorable purposes they have been refused admittance to the shop and it is perfectly certain in my estimation that I, or anybody sent by me would not only be denied the privilege of producing the machine but be denied the privilege of entering upon their premises.

Counsel for Latham here states that he has been making an effort to locate the machine in question, has sent a competent man to the building 101 Beekman Street without being able to accomplish anything toward gaining the desired information and that he is still making effort to locate the machine and is considering what steps may be necessary to bring about its production, if it can be located. Every reasonable effort will be made to make the machine an exhibit in this case.

2480

Q45. I hand you four blue prints of the drawings filed with your application for patent involved in this interference and I ask you to look at Figs. 2 and 4 and 5, particularly, and you may look at Figs. 6 and 7, and state whether the views in question correctly represent the original machine or such part of it as said views are intended to show?

2481

Mr. Marble: The question is objected to as leading and further because the question does call for the best evidence in the case. And also because there is no proof that the papers handed the witness are blue prints of

2482

drawings filed with his application involved in this interference, said papers being without a certificate of identity or any other means of identification.

2483

A. The blue prints and the figures referred to specifically represent correctly the substantial and essential features of the machine concerned in this interference. There are represented in Figs. 1, 2, and 3, friction appliances for regulating the force coming from the motor which do not necessarily belong to this machine and which are not necessary for any machine. In view of the objection made by the attorney for Casler, I state confidently and positively that the blue prints are an exact copy of the drawing sent to the patent office with the application in this case.

Mr. Marble: The answer is objected to as irresponsible.

2484

Q46. I think I asked you whether the blue prints which you have examined or the figures specified correctly represent the original machine. Your answer does not seem to cover the ground. Please look at the preceding question and answer the question as now explained.

Same objections.

A. The blue prints and the figures referred to represent correctly the substantial and essential features of the machine originally constructed, but at the time at which application for patent was made two additional machines had been constructed, and while in every essential feature these machines were precisely what the first machine

was, there are some slight additions for convenience of manipulation or otherwise that were made in constructing the second and third machines. The additions that were made and as they are represented in the drawing have nothing whatever to do with the subject matter of the interference. The appliances for moving the film and for operating the shutter are the same in all three machines as is the appliance for intermittently interrupting the movement of the film across the optical axis.

Mr. Marble: The answer is objected to as irresponsible. 2486

Q47. When were the two additional machines which you mentioned constructed?

A. My recollection is that they were constructed in the fall of 1895. I constructed them in expectation that they would be used in photographing the prize fight between Corbett and Fitzsimmons that was expected to occur in Texas, but which did not come off. The two machines were made to stand upon one table, and were arranged so that if one should on any account fail to operate there would be an electric notification of the fact, so that the second machine could pick up the work where the first left off. The second and third machines were not made because of any purpose of introducing improvements, but simply because the machine already on hand was constantly needed in New York and because I desired to be prepared to photograph the fight already referred to. 2487

Q48. Where are these two additional machines that you have mentioned, if you know?

A. They became the property of the Eidoloscope Company, and for aught I know are to be found where the first machine is.

*Latham, Interference Deposition.*

2488

Counsel for Latham offers in evidence the blue prints just referred to by the witness, and they are marked Latham Exhibit No. 7, J. A. S., Comm'r, December 4, 1897.

Mr. Marble: The offer and receipt of the exhibits is objected to as incompetent and secondary.

Q49. Who, in your opinion, was the originator of the first practical mode of projecting on a screen pictures of moving objects with the pictures printed upon a film of considerable length?

2489

Mr. Marble: Question objected to as immaterial and irrelevant and calling the witness to speculate.

2490

A. Prior to my exhibiting such pictures in New York in the spring of 1895, I had not been able to learn of any machine so constructed as that such exhibitions could be made with it and the publications that the newspapers in New York City and elsewhere made about it confirmed me in the opinion that I had accomplished what had not been accomplished before. The general public certainly had no knowledge of prior apparatus for doing such work. The Edison Kinetoscope was not a projecting machine and the public knew of nothing going to show that it had ever been combined with a magic lantern in a way to make the projection of the pictures possible. It is true that a patent had been granted Mr. Edison for such an appliance but the drawing represents what is absolutely impossible in optics and it is utterly impossible to project a picture with an appliance like that Mr. Edison secured a patent for.

Adjourned to Monday, December 6, 1897, at 10 a. m.

*Latham, Interference Deposition.*

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New York, December 6, 1897.

Met pursuant to adjournment.

Present—Counsel and party as before.

Continuation of the Direct-examination of Woodville Latham:

By Mr. Bowen:

Counsel for Latham gives notice on the record of his purpose to call as a witness in this case W. K. L. Dickson, who it is now understood is in Europe. 2492

Q50. Since your examination on Saturday, state whether or not you have read over your testimony as taken down, and if you find anything therein which you desire to correct as erroneous?

A. I find on page 18 that I am reported to have used the expression June the 21st, 1895. I intended to say April 21, 1895. My reference was to an occasion referred to on page 13 in answer to Q21, where the proper date is given. The date was also properly given on page 19 in answer to Q33. 2493

Q51. Please state the date when you made the first purchase of film for use with the first machine concerning which you have testified?

A. I ordered the first film from the Eastman Kodak Company, of Rochester, N. Y., on February 12, 1895. It was shipped to me from Rochester on February 13, 1895, as appears from the bill. My recollection is that it was received the following day—that is February the 14th, 1895. The bill referred to I submit.

Prior to ordering this film I had experimented with the film of the Edison Kinetoscope, which

*Latham, Interference Deposition.*

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was five-eighths of an inch narrower than the film purchased by me of the Eastman Kodak Company.

Counsel for Latham offers the bill referred to by the witness in evidence, and it is marked "Latham Exhibit No. 8, Dec. 6, 1897, J. A. S., Com'r."

Mr. Marble: The offer and receipt in evidence of the exhibit is objected to as immaterial and irrelevant.

2495

Q52. What was the purpose of ordering the supply of film mentioned in Latham Exhibit No. 8?

A. It was to test finally the action of the machine which, at that time, had been completed, or which was so near completion as to justify the belief that the film could be used as soon as it should be received, for photographing pictures of movement.

Q53. State if you know, where the piece of film attached to Latham Exhibit No. 2 came from?

2496

A. It came from the Eastman Kodak Company, and was a part of the film mentioned in the bill just referred to. At that time so far as I knew and now believe, there was no film upon which pictures of moving objects had been photographed to be found in this country, except the film of the Edison Kinetoscope, which had a width of one and three-eighths inches, whereas the film purchased by me of the Eastman Kodak Company had a width of two inches.

Q54. I notice on the film, attached to Latham Exhibit No. 2, that it is perforated on both of its edges: State whether or not the film purchased

2497

from the Eastman Company was provided with such perforations?

A. It was not, and I had to make a perforating machine before it was possible to use the film aforesaid. I further had to construct a covering for the machine before it was possible to use it as a photographing apparatus. This work was all completed, and the film was ready for use (some portion of the film, I should say) on February 26, 1895.

Q55. State briefly the reason for perforating the film on its edges?

A. The object of the perforation is to cause the roller, which feeds the film on one side of the optical axis and of the roller that takes up the film on the other side of the optical axis, to move forward in a revolution an exact number of pictures, or spaces for pictures, rather than an exact number of inches in length of the film. The arrangement of the apparatus is such that the sprocket rollers have a circumference suited to carrying forward in one revolution four pictures, and the device for drawing these pictures rapidly into place is so geared to the sprocket rollers that four movements are made by the rapidly moving device during one revolution of the sprocket roller. If the sprocket roller should in a revolution carry forward more or less than four pictures, on film sufficient for four pictures, the rapidly moving device would, in each of its actions, bring down more or less than a picture into the optical axis, or more or less than the exact length of film intended for a single picture. The sprocket wheel, therefore, whether it be employed in a machine for giving intermittent movement to the film, or in a machine through which the film is moved continuously across the optical axis, has with some propriety been called the registering device of such apparatus.

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*Latham, Interference Deposition.*

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Q56. While on this subject of the construction of the machine, I wish to inquire, with a little more particularity, as to the devices embodied in the original machine, of which you have testified: Please refer to the blue prints (Latham Exhibit No. 7), and to Figs. 4 and 5 thereof, and state what said figures represent?

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Mr. Marble: The question is objected to because the specification of the application fully describes Figures 4 and 5, and it is, therefore, the best evidence of their construction and operation. The witness cannot be permitted now to contradict the specification, or to state anything which would be contradictory thereof; and further, that the testimony called for is secondary.

2502

Counsel for Latham states that Mr. Marble has misunderstood, or not understood, the purport of the question. The blue prints are not referred to in this question as a part of the Patent Office record, but simply as blue prints showing a taking and projecting machine, and the witness is asked to describe the construction shown in certain figures of the blue prints and to do this regardless of what may be embodied in the specification of his interfering application.

Counsel for Casler replies that he did not misunderstand the purport of the question, as the question is very plain and simple, and he insists upon his objection.

A. These figures are representations of the intermittent rapidly moving device, which was a part

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of the machine originally constructed by me for photographing and projecting pictures of objects in movement. Figure 5 shows the broken gear employed to give intermittent movement to the film, and Figure 4 shows how the device is geared to the shaft, carrying one of the constantly moving sprocket wheels, or drums.

Q57. In the interference issue an element thereof is recited as "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement so that the interval of pause and illumination shall exceed the interval of motion": State whether or not the mechanism shown in Figures 4 and 5 of Latham Exhibit No. 7 is adapted to perform that function, and then state the differences, if any, between the stop motion mechanism of the original machine, of which you have testified, and the mechanism shown in Figures 4 and 5 of this exhibit?

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Mr. Marble: The question is objected to as leading, and also because it calls for secondary testimony.

2505

A. The mechanism shown in Figs. 4 and 5 is precisely that employed on the original machine. Referring to Fig. 5, it will be observed that the wheel 48—

Counsel for the witness interrupts the witness, and states that if he will read the question and answer it in the order in which the statements of the question are put, it will save time.

2506

The Witness (continuing): Figs. 4 and 5 represent means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause, or period of pause it ought to be, and illumination shall exceed the interval, or period, rather, of motion. The mechanism shown in Figs. 4 and 5 is adapted to perform that function. There is no difference between the stop motion mechanism of the original machine, of which I have testified, and the mechanism shown in Figs. 4 and 5 of this Exhibit.

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Mr. Marble: The answer is objected to as secondary, and because the witness, in his said answer, seeks to contradict the statements in his specification of his application involved in this interference.

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The Witness (continuing): I should like to add to my answer the following statement: By reference to Fig. 5 of the Exhibit, it will be seen that the shaft 49 is made to revolve intermittently by the revolution of the shaft 34. The shaft 49 carries a sprocket wheel; that sprocket wheel is made to move only when the teeth of the wheel 47 engage the teeth of the wheel 48; and, as the teeth of the wheel 47 occupy only a small part of the circumference of the wheel 47, it is obvious that the rest of the film will be longer than the movement as the untoothed part of the wheel 47 is longer than the toothed part of said wheel.

Mr. Marble: Same objections as to the rest of his answer.

2509

Q58. The interference issue also contains an element described as "mechanism for feeding the film so as to provide slack therein between the same and said tension device." Please state whether or not you find shown in Figs. 6 and 7 of Latham Exhibit 7, mechanism for effecting such object, and then state whether or not the original machine embodied mechanism for effecting such purpose, and also state in what respect the mechanism, shown in the figures mentioned of the blue print, differs from the mechanism for the purpose in question that was in the original machine, provided it was there?

2510

Mr. Marble: The question is objected to as leading, assuming, secondary and because it seeks to contradict the statement of the specification of the witness's application involved in this interference.

A. The figures 6 and 7 referred to, exhibit mechanism for feeding the film so as to provide slack therein between the said mechanism and said tension device. The mechanism is nothing more than the sprocket wheel numbered 39 in figures 6 and 7. That sprocket wheel revolves at the same rate as the sprocket wheel 46. If, in the beginning, the film is taut between the wheels 46 and 39, it will remain taut, but if, before the operation of the machine has begun, a loop is left in the film between the wheel 39 and the tension device 56, that loop will be intermittently taken up in whole or part by the movement of sprocket wheel 50 and will be re-established during the time during which the sprocket wheel 50 is at rest. In no respect does the mechanism, as shown in Figs. 6 and 7,

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*Latham, Interference Deposition.*

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differ from the mechanism employed in the original device.

Mr. Marble: The answer is objected to as secondary.

Q59. State whether or not you find in Figures 6 and 7 of the exhibit blue print, a tension device co-operating with the film?

2513

Mr. Marble: The question is objected to because it calls for secondary evidence.

A. I do. The expression "tension device" is not mine; I would call it rather a device for preventing the film from folding or puckering at the optical axis. It is marked 56 in Figs. 6 and 7, and consists of a hinged door, which can be shut and pressed against a plate with more or less force, so as to keep the film flat at the optical axis; both door and plate, of course, have apertures to admit light to the film, and both door and plate, on the inner sides, are cushioned with an elastic material of some sort to diminish the chance of damage to the film as it is dragged through the device.

2514

Mr. Marble: The answer is objected to as secondary, because it seeks to contradict the statement of the specification in the application of the witness involved in this interference.

Q60. State whether or not the original machine, of which you have testified, embraced any such device, or devices, as you have described in the preceding answer.

*Latham, Interference Deposition.*

2515

Mr. Marble: The question is objected to as leading and calling for secondary testimony.

A. It embraced precisely the same device and devices that I have described.

Mr. Marble: The answer is objected to as secondary.

Q61. Describe briefly the function and purpose of the rollers marked 57a and 58a carried by arms 57 and 58, as shown in Figs. 6 and 7 of the blue prints Latham Exhibit 7?

2516

Mr. Marble: The question is objected to because it calls for secondary testimony.

A. They are merely guide rollers and are not absolutely essential to the working of the apparatus, especially where the sprocket drums 39 and 46 are made of larger size. The special purpose of the two rollers 58a and the lower roller 57a, is to make the film embrace the sprocket drums 46, 50 and 39 more completely. The upper roller, 57a, serves no other purpose than to guide the film in a zig-zag way towards the tension device 56.

2517

Mr. Marble: The answer is objected to as secondary and because it seeks to contradict statements of the witness's specification forming part of his application involved in this interference.

Q62. You have stated that the first machine embodying the subject-matter of this interference was

*Latham, Interference Deposition.*

2518

used primarily for taking pictures. Now state whether or not a taking machine for photographing objects in motion can be used to project the pictures taken by it?

A. Always, provided there is proper space for a suitable light and suitable condenser.

Q63. I hand you a strip of film, which please examine and state what it represents, and what you know about it?

2519

A. This piece of film is a part of the series of pictures photographed on the Madison Square Garden roof on May 4, 1905. It represents a boxing match between two men by the names of Griffo and Barnett. The pictures were photographed in my presence and in the presence of a large number of people. The machine was operated by Otway Latham and W. K. L. Dickson working together. The film was originally two inches wide. I, myself, cut off the margins of the film so that I might use it in another machine of my construction.

Q64. When did you state the pictures were taken on the Madison Square Garden roof?

A. On May 4, 1895.

2520

Counsel for Latham offers the strip of film referred to in answer to Q63, in evidence, and it is marked Latham Exhibit No. 9, Dec. 6, 1897, J. A. S., Com'r.

Mr. Marble: The offer and receipt of the exhibit is objected to as immaterial and irrelevant.

Q65. I hand you a clipping which purports to be cut from the Daily Inter-Ocean of Chicago of date, June 10, 1895, and ask whether or not you have seen it before and what you know about it?

*Latham, Interference Deposition.*

2521

Mr. Marble: The question is objected to because it calls for immaterial, irrelevant and secondary testimony.

A. The clipping contains a notice of the photographing, already referred to, done on Madison Square Garden roof May 4, 1895. I cut it myself from the Daily Inter-Ocean of Chicago, of June 10, 1895. The publication was made without my knowledge or consent. I do not know who instigated it.

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Mr. Marble: The answer is objected to as secondary.

Counsel for Latham offers in evidence the clipping referred to in the last answer and it is marked Latham Exhibit 10, Dec. 6, 1897, J. A. S., Com'r.

Mr. Marble: The offering and receipt of the Exhibit No. 10 is objected to as immaterial and secondary and hearsay.

Counsel for Latham gives notice of his purpose to call as a witness on behalf of Latham, Mr. Thomas Armat, a party to this interference.

2523

Direct-examination closed.

XQ104. In your direct testimony, you made statements about the original machine and two other machines for taking pictures slightly different from the original machine. These three machines were once owned by the Lambda Company, were they not, and sold by it to the Eidoloscope Company?

A. No, sir.

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XQ105. Why do you say no, sir?

2525 A. For the reason that at the time the transaction was entered into with the Eidoloscope Company, the two machines last named belonged to myself and my sons. The Lambda Company had not purchased them of us. The shop and machinery for manufacturing purposes never belonged to the Lambda Company, except that the rooms and appliances for printing and developing the picture strips had become their property. I proposed to the directors of the Lambda Company that the Lambda Company should purchase of my sons and myself the machinery, other than that belonging to the developing rooms, but the directors declined to make the purchase, agreeing to have done by my sons and myself any future work that the Lambda Company might require. The two last made machines referred to were made under my individual order to the workman, and he was directed by me to make the machines precisely like the first one, and to mount them together on one table. When they were finished there was no difference between them and the first machine of more importance. than would be the difference between two chairs, one of which was a little more elaborately carved than the other.

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XQ106. When did these two additional machines become the property of the Eidoloscope Company?

A. They became the property of the Eidoloscope Company at the time when the assets of the Lambda Company became the property of the Eidoloscope Company.

XQ107. Then the Eidoloscope Company had three taking or photographing machines and five projecting machines; is that correct?

2527

A. Yes, sir.

XQ108. You speak of five projecting machines; were those machines made like the machine described and illustrated and claimed in an application which you filed December 28, 1895?

A. They were not.

XQ109. They were continuous moving machines, were they not? I mean the film was continuously moving?

A. They were.

XQ110. When were those machines made, if you remember?

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A. My recollection is that the construction began in November, 1894, and was continued from time to time till they were completed.

XQ111. When were they completed?

A. I am unable to say definitely.

XQ112. Give the date as near as you can?

A. I know positively that they were completed prior to the time of the contract with the Eidoloscope Company, and that at least one of them was completed prior to May, 1905.

XQ113. Who did the work in those five projecting machines?

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A. Eugene Lauste and E. W. Kleinert.

XQ114. Did those gentlemen work under your supervision and direction?

A. They worked under the direct supervision of my son, Otway Latham, who was under my general direction.

XQ115. You were having these five projecting machines constructed during the spring, summer and fall of 1895, were you not?

A. I have already stated that I do not remember when they were finished. After they had been com-

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pleted alterations from time to time were made in such of them as happened to be in the shop. These alterations involved no change in the principle of construction, however. The plan for making these machines had been determined on definitely in the fall of 1894.

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XQ116. You have testified that at least one of these machines was completed in May, 1895, and that they were all completed before the making of the contract between the directors of the Lambda Company and some gentlemen who proposed to get up the Eidoloscope Company, which was in January or February, 1896, according to your recollection. Now, is it not a fact that these five machines were in process of construction during the whole of the year 1895, or nearly so?

A. I did not intimate any such thing in my answer, and such was not the fact.

XQ117. When were they constructed?

A. I am unable to say more definitely than I have already said.

XQ118. When were the two additional photographing machines made?

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A. My recollection is that they were begun either in the latter part of the summer or the early part of the fall of 1895. It may, however, have been somewhat later. Certainly prior to the year 1896.

XQ119. It is a fact, is it not, that during the year 1895 the Lambda Company was constructing under your general direction machines for taking pictures and machines for projecting pictures, and that these machines were not alike?

A. I have testified that I made one machine for photographing and projecting pictures of movement and five other machines suitable simply for pro-

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jecting pictures; that these machines were sold to the Lambda Company and that the Lambda Company had not previously been engaged in the manufacture of anything, and that the Lambda Company through its directors had positively refused to have anything to do with the manufacturing of machines in the future; that the two additional machines, heretofore mentioned, for photographing and projecting pictures were made by me with the expectation that I would be able to sell them to the Lambda Company, but that the Lambda Company never purchased them, and that in the early part of the year 1896 I sold them to the Eidoloscope Company. 2534

XQ120. If I understand your last answer in connection with your other answers, there was, during the year 1895, constructed by you, or under your general supervision, two photographing machines and five projecting machines, and that these machines were of different construction; is that so?

A. I did not so testify.

XQ121. In your answer to XQ112, referring to the five machines for projecting pictures, you stated: "I know positively that they were completed prior to the time of the contract with the Eidoloscope Company, and that at least one of them was completed prior to May, 1895"; is that correct? 2535

A. That is correct, sir.

XQ122. In your answer to XQ118, referring to the two additional photographing machines, you stated: "My recollection is that they were begun either in the latter part of the summer or the early part of the Fall of 1895. It may, however, have

*Latham, Interference Deposition.*

2536

been somewhat later. Certainly prior to the year 1896." Is that correct?

A. That is correct, sir.

XQ123. In view of your last two answers, why did you say, in answer to XQ120, "I did not so testify"?

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A. Because I have not testified that the construction of the five machines occurred during the year 1895; I stated explicitly that, according to my best recollection, the construction began in November, 1894, and for aught I know the machines may have been all finished long before the first of May; I have mentioned the month of May simply because I desire to be clearly within the bounds of truth, as the time when at least one of the machines was completed, and for that reason that I remembered perfectly well that in the month of May projections on a screen were made with at least one of those five machines.

XQ124. Why did you first make application for a patent for a machine for projecting pictures on a screen with a constantly moving film?

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Counsel for Latham objects to the question as it does not appear that Casler's attorney is rightfully in possession, if in possession, of any knowledge of such prior application. And the witness is instructed that he need not answer any questions concerning inventions for which he has applications pending at the Patent Office that are not involved in this interference, as such pending applications are matters between himself and the Patent Office, and he has a right to refuse to divulge anything concerning them in this proceeding.

*Latham, Interference Deposition.*

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Counsel for Casler states that he is in possession of a certified copy of an application filed by the witness December 28, 1895; that this application was properly applied for by one of the members of his firm, and is legitimately and legally in counsel's possession; that in this application referred to, there is described and illustrated a projecting machine with a continuously moving film in contradistinction from an intermittently moving film; that he has a right to test the memory of this witness on all subjects connected with the matter at issue in this interference and for the reasons of his actions, and that is all that this question calls for. He, therefore, insists that the question be answered.

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Counsel for Latham states that he understands that the certified copy which Mr. Marble holds in his hand is a certified copy of the file and contents of the Latham application of December 28, 1895, that has been declared to interfere on an entirely different feature of invention from that involved in the present interference with the application of Casler, that is involved in this interference. It is admitted that the certified copy is rightfully in possession of counsel, and no objection is made to the witness answering the question so far as it relates to the application of December 28, 1895, notwithstanding that the subject matter of that application is for an invention distinct from the invention of the application involved in this interference.

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A. I respectfully decline to answer the question for the reason, first, that it is an inquiry into my private business, and for the reason second, that the application, which has suggested the inquiry, is not in the hands of the attorney for Casler properly or legally for the purposes of this investigation.

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XQ125. Your counsel admits that this certified copy of your application of December 28, 1895, is "rightly in possession of counsel," and says that he has no objection "to the witness answering the question so far as it relates to the application of December 28, 1895, notwithstanding that the subject matter of that application was for an invention distinct from the invention of the application involved in the interference": Now, why do you decline for the reasons stated in your last answer, when your counsel says that counsel for Casler is rightfully in possession of the certified copy, and he has no objection to your answering the question?

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A. My counsel did not say the attorney for Casler is rightfully in possession of the application of December 28, 1895, for the purposes of this investigation. A copy of that application could never have been obtained by the attorney for Casler acting simply in this case. He is also attorney for Casler in an interference case that concerns the application of December 28, 1895, and it is simply and solely because of his employment as attorney in this latter case that the Commissioner of Patents allowed him to have a copy of my application of December 28, 1895. I insist that these two cases of interference shall be tried separately, and I refuse positively notwithstanding the advice of my

*Latham, Interference Deposition.*

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counsel to answer questions based on information coming to the attorney of Casler by virtue of his connection with another and a separate and distinct interference with which I am concerned.

Counsel for Casler gives notice of a motion to strike the testimony of this witness from the record because he is recalcitrant and also reserves for the present the right to make a motion to the U. S. Circuit Court for the Southern District of New York to compel this witness to answer the question as by statute he is authorized to make this motion.

2546

XQ126. You have testified that you are a party to this interference: Please state what the combination of elements is which form the issue of this interference?

A. The statement is made in the interference as to what the matter of interference is and it is word for word one of the claims found in Mr. Armat's application. It would be impossible for me to repeat it verbatim; it would be even impossible for me to repeat verbatim my own short claim No. 10, I believe it is, or Mr. Casler's claim No. 5; but as I have read these three claims, I find that to my apprehension they are precisely alike in one particular only and that is that they all three include a device for maintaining a loop on one side of the door or window through which projection is made.

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XQ127. I did not ask you to repeat the issue of interference verbatim, but to state what the combination of elements is in the issue of the interference which you say you invented?

A. One of the elements included is for moving the film continuously. Another of the elements

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is means for interrupting this continuous movement at short intervals at the optical axis, and the third means is one for maintaining a loop on one side of the window, or door, through which projection is made—that is on one side of the so-called tension device, and the fourth means is the tension device itself.

XQ128. Is that the best statement you can make as to your knowledge of the elements which form the combination of the issue of this interference?

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A. So various are the ways in which things may be expressed by words that a man may accurately express a thing at one time in one way and at another time in another way and the question which of those expressions is the better or whether any one of them is the best that could be made is a question that nobody can answer. I simply declare that in my apprehension I have made a general, but a thoroughly accurate statement of what are the points at issue. Whether it is the best I could make or not might depend upon how many hours I slept last night or to what extent the food I have eaten to-day has agreed with me.

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Adjourned to Tuesday, December 7, 1897, at 11 A. M.

*Latham, Interference Deposition.*

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New York, December 7, 1897.

Met pursuant to adjournment.

Present—Counsel as before, the witness, except Mr.

ARMAT.

Continuation of the cross-examination of Woodville  
Latham:

By Mr. Marble:

XQ129. Have you the contract made by you with  
the Lambda Company mentioned yesterday in your  
testimony? 2552

A. As I stated yesterday my impression was  
that I had it, but I have made search and find that  
I was mistaken.

XQ130. Have you the charter of the Lambda  
Company?

A. I make the same answer that I made to the  
foregoing question.

XQ130. What search have you made for these  
papers?

A. Among my papers.

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Mr. Armat appeared at this point.

XQ132. Many of the dates given in your tes-  
timony as to when things occurred are given sim-  
ply from memory, are they not?

A. I could not answer that question unless I  
knew what particular questions are referred to.

XQ133. Have you any data by which you can  
fix your alleged conception of the invention here  
in controversy in July or August, 1894?

A. I have.

*Latham, Interference Deposition.*

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XQ134. Have you thus far produced it?

A. My recollection is that it was mentioned early in my direct testimony.

XQ135. What is this date?

2555 A. The fact that in July or August, 1894, my sons were making exhibitions of pictures of movement at 83 Nassau Street by the use of Edison's Kinetoscope, and that both they and I heard persons repeatedly express a desire that such apparatus might be provided. My recollection is perfectly distinct that at that time I conceived of the devices in a general way and stated my notion to my sons and subsequently, certainly I think as early as September or October, 1894, to W. K. L. Dickson, who was then in the employ of Mr. Thomas A. Edison.

XQ136. There is nothing in the case except your statement that your sons were running a place for the exhibition of the Kinetoscope at 83 Nassau Street, this city, in July or August, 1894, is there?

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Counsel for Latham certainly intends, by witnesses that he shall call, to establish the fact of the exhibition at 83 Nassau Street in July or August, 1894, and will do so when opportunity offers itself.

A. My answer to that question is to be found in the statement just made by my attorney.

XQ137. Is that all the answer you can make to the question?

A. It is the only answer I can properly make at this time.

XQ138. You mention in your testimony the making of some sketches in the summer or fall of 1894;

*Latham, Interference Deposition.*

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is it a fact that all of such sketches were thrown away by you?

A. I have already stated on my direct examination that sketches were made in September, 1894. My belief is that they were made, many of them prior to the date even, but they were sketches made in order to convey to others ideas that were in my own mind, and without exception, so far as I believe, they were destroyed, after they had served their purpose.

XQ139. Did you show these sketches which you claim to have made to any one except your son? 2558

A. I showed them, as I think I have already stated, some of them at least, to Mr. W. K. L. Dickson, who at that time, was in intimate association with my sons and myself. Prior to the first of November my recollection is that I did not show the drawings to others than those I have just mentioned.

XQ140. Do you now remember distinctly what was shown on any of these sketches, to which you have referred?

A. So far as concerns the making of a machine for carrying the film continuously there never was any question as to its proper construction. The only difficulty as to machinery from the beginning was in selecting such an intermittent movement as would best answer the purpose in view. Nor was there any question as to the means of maintaining a loop at the proper place, nor was there any difficulty in at once devising a satisfactory device such as in this case has been called a tension device. I should correct the statement just made that there was only one question which was a difficult thing to solve at once. Another was this: How shall the 2559

*Latham, Interference Deposition.*

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receiving reel of a device for photographing and projecting pictures be connected with the other parts of the machinery so that its circumferential movement shall be uniform? The drawings that were made were, for the most part, simply drawings of a variety of intermittent arrangements previously employed in other connections. The only original device, or rather the only device that I did not know had been previously used for a variety of purposes, that was considered, was one which, in response to my suggestion, Mr. W. K. L. Dickson proposed. Even to this day no intermittent device, so far as I am aware, is in use that is utterly unobjectionable.

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Mr. Marble: The answer is objected to as irresponsible.

The Witness: I shall be glad to answer the question in a satisfactory way. I answered it according to my understanding of it.

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XQ141. Referring to direct question 8 you say, among other things, "such working drawings as were made from the 1st of November on were left in my shop at 101 Beekman Street." Do you remember distinctly what was shown on these so-called working drawings?

A. My statement ought to have been that so far as I knew, the drawings referred to were left in the shop that had belonged to me and my sons. Prior to the time when the shop passed out of our control, I frequently saw such drawings in the possession of Eugene Lauste, the mechanic, who made them. When he left the employment of my sons and myself, he accepted employment from those

*Latham, Interference Deposition.*

2563

into whose hands the shop and machinery passed. It is probable that he continued to keep the drawings as he had previously done, but of this I know nothing of my own knowledge. Mr. Lauste's practice was not to make complete drawings of a machine that he undertook the manufacture of, but to make such a drawing as he himself could understand of the parts of the machine that from time to time he intended to construct. I do not remember to have seen at any time a complete drawing of the machine as a whole until the drawings for the Patent Office, at Washington, D. C., had been made.

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XQ142. When were those Patent Office drawings made?

Mr. Bowen: I object to the question unless it is made to refer to the drawings of the machine involved in this interference.

A. The drawings of the machine involved in this interference were made by Mr. Raphael Netter, of New York City, at some time prior to the date of the application, but just how long before the application was put in I am unable to say. Mr. Netter is in this city and doubtless will be able to give the date.

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XQ143. From the certified copy which I have of your application involved in this interference, it appears on the certificate of the Commissioner of Patents that said application was filed June 1, 1896. Do you remember when it was filed?

Mr. Bowen: The question is objected to as incompetent as the evidence of the date of

*Latham, Interference Deposition.*

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filing is a matter of official record and is now in possession of counsel for Casler, and moreover the way to prove the date of filing is well understood and the witness's evidence will be secondary in its nature.

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A. There are some things the dates of the occurrence of which there may be special reason why a man taxes his memory with. When a man has had official record made of a date, he doesn't trouble himself ordinarily to bear such a date in memory. I would not, therefore, to-day be able to say with confidence just what day the application referred to was filed, but for an acknowledgment from the Patent Office in Washington.

XQ144. It appears in the record of the testimony in this case, a record dictated by your counsel, that your application involved in this interference—that is, the statement of date—was filed on June 1, 1896; are you satisfied that this is the correct date?

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Mr. Bowen objects to the above question because of the use of the word "record" therein. The question as put clearly implies that the record of this testimony was dictated by myself. I suggest that where the word "record" occurs in the expression "a record dictated by your counsel" be altered to "statement," because, while I asked the witness the question referred to by Mr. Marble, that was all.

A. I have no reason to doubt the correctness of it.

*Latham, Interference Deposition.*

2569

XQ145. Now, I wish to ask you to approximate as nearly as you can, how long before the filing of your application involved in this interference it was that these Patent Office drawings were made; was it a week, two weeks or a month?

A. I am utterly unable to say.

XQ146. I hand you a certified copy of the file and contents of your application involved in this interference, including the certified copy of the drawings, and ask you to examine said drawings, and then to state whether they are, so far as you know, correct copies of your drawings filed in your application involved in this interference?

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Mr. Bowen: Objected to as incompetent.

A. Yes, sir; so far as I know those are correct copies.

XQ147. Did you swear to your application involved in this interference?

A. My recollection is that I did, and I hardly think the Patent Office would have given any attention to the application otherwise.

XQ148. Before swearing to your application involved in this interference did you read it over, or have it read over to you until you thoroughly understood it?

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A. I read it over myself and I thoroughly understood it.

XQ149. Again I hand you the certified copy of the file and the contents of your application involved in this interference, and ask you to examine the specification and claims thereof as originally filed, and see if you find in there a word or syllable or expression of any kind that the film is to be so moved "that the interval of pause and illumination shall exceed the interval of motion"?

*Latham, Interference Deposition.*

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Mr. Bowen: The question is objected to, unless the alleged certified copy be made an exhibit in this case. Until it is made an exhibit it is denied for the purposes of this question, that it is a certified copy of the Latham application involved in this interference.

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Counsel for Casler will so far humor counsel for Latham as to ask the Commissioner, or the gentleman acting in his stead, to mark for identification the certified copy tendered to the witness in XQ149. The identification to read as follows: "The certified copy of the file and contents of the application of Woodville Latham, filed June 1, 1896, Serial No. 593,747," and signing his name thereon.

A. The original specification on file at Washington City will show for itself.

XQ150. Do you refuse to answer the question; that is cross-question 149?

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A. It depends altogether upon whether I am to base answer to the question on the specification merely or upon the entire file, drawings included.

XQ151. (XQ149 repeated.)

Mr. Bowen instructs the witness that he should endeavor to answer the question, and that in so doing he is at liberty to answer it in his own way, and, if he thinks proper, to answer it in connection with whatever it attached to the certificate of certification, including the drawings.

Counsel for Casler excepts to the instruction given by counsel for Latham to the witness because he instructs the witness to com-

*Latham, Interference Deposition.*

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mit a bare-faced violation of his duty as a witness, and seeks to induce the witness not to answer the question as propounded.

Counsel for Casler gives notice that if the witness answers the question in accordance with the instruction of counsel for Latham, he will move to strike the witness's answer from the record.

Mr. Bowen denies that he has any intention of instructing the witness not to answer the question as propounded; on the contrary, he thinks the witness should answer the question, but counsel avails himself of his privilege to see that the witness is made acquainted with his rights as a witness.

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A. I have no absolutely certain information that what purports to be a certified copy of the file in my case of June 1, 1896, is such; but I will state first, that the question whether the pause of the film at the optical axis ought to be longer than its time of movement from the optical axis is a question depending largely upon how many pictures per second are to be photographed or projected. In photographing pictures, the proper pause must be only sufficient for a distinct impression to be made upon the film by the rays proceeding from the object photographed. How such pause shall be related in length to the time of movement depends upon nothing else than the number of pictures per second photographed. In projecting, the pause must be sufficient to make an impression upon the eye of the observer, and in projecting machines, as well as in photographing machines, the ratio of such pause to the intermittent movement will depend solely upon the number of pictures projected

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in a second. As a matter of fact, the machine of mine, in interference in this case, is a machine which, as originally constructed, had an appliance exhibited in Fig. 5 of the drawings for making the pause several times longer than the time of movement, as I believe, I explained in my direct-examination. As I believe and did believe at the time of making the application that there is no scientific basis for a general claim of advantage coming of an arrangement for making the pause at all times and under all circumstances greater in duration than the time of movement. I did not put in a claim to any such thing in any application, nor is there mention of any such thing in the specification filed in Washington, June the 1st, 1896.

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XQ152. In your last answer you mention Fig. 5 of the drawings as representing a device which you had in your first machine. Fig. 5 of your drawing represents a device, does it not, which you bought ready made and as known as the Geneva movement?

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A. It is a device which I ordered to be made for me; it is not known as the Geneva movement, but as the Geneva stop, and was employed first, so far as I know, by the Swiss watchmakers a great many year ago not to produce intermittent movement, but to prevent the over-winding of watches.

XQ153. Prior to your attention being called to the kinetoscope, which was being exhibited by your sons at 83 Nassau Street, had you ever made a study of photography?

A. Yes, sir. The general principles of photography I began to study when I was about fifteen years of age, and one of the first books upon the principles of photography that I read was that of

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Dr. Draper, of New York, who, in the estimation of a great many well-informed people, is fairly to be considered as having first suggested the processes that have made modern photography a possibility. Many years before Mr. Edison's kinetoscope was produced, and before Anschutz, his predecessor, interested himself in making and projecting pictures of movement, I clearly understood the conditions under which objects in motion could be photographed.

XQ154. Prior to the time mentioned in the last question, had you ever made an application for a patent for an invention?

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A. Never, except at one time as an assignee of an interest in a spring motor invented by others.

XQ155. Are you a mechanic?

A. Not by profession. My direct testimony has shown that my life has been passed in other pursuits.

XQ156. When did you first become acquainted with W. K. L. Dickson?

A. In the summer of 1894.

XQ157. Do you know where he was then employed?

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A. He was then employed in the establishment of Mr. Thomas A. Edison.

XQ158. Did you learn from Mr. Dickson soon after your acquaintance with him that he was employed, and had been for some time before, on machines and apparatus for taking and projecting pictures on a screen?

A. I did.

XQ159. The Edison kinetoscope appeared in public sometime before you became acquainted with Mr. Dickson, did it not?

A. It did, and my information was that prior to

*Latham, Interference Deposition.*

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the exhibition of the kinetoscope and prior to my coming to New York an instrument similar to the kinetoscope had been exhibited at Koster & Bial's Theatre, if I mistake not, on Sixth Avenue.

Adjourned to December 8, 1897, at 10 a. m.

New York, December 8, 1897.

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Met pursuant to adjournment.

Present—Counsel as before, Mr. LATHAM and Mr. ARMAT.

Continuation of the cross-examination of WOODVILLE LATHAM:

By Mr. Marble:

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XQ160. Did you consent to the arrangement which you say was made by your sons with Mr. Dickson that he should have one-fourth of the stock of the company to be organized for his services in connection with this apparatus which you had in consideration?

A. At the time of the agreement between my sons and Mr. Dickson it was not my expectation to become a stockholder in any company my sons might be instrumental in organizing; hence my consent to the arrangement they made with Mr. Dickson was not asked. They told me, however, from time to time, of their interviews with Mr. Dickson and of what Mr. Dickson proposed to do for them; not only so, but I myself repeatedly heard Mr. Dickson make to them promises as to what he could and would do.

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XQ161. Did you yourself talk with Mr. Dickson about your alleged invention and as to the construction of an apparatus to accomplish what you wished to accomplish?

A. I did.

XQ162. How many times, if you can remember?

A. These conversations occurred so very frequently that it is impossible for me to give their number. For a considerable period it was the custom of Mr. Dickson to come to my room at the Bartholdi Hotel at night from his home in Orange, New Jersey, once or twice a week to confer with me about the devices. During such visits there was a discussion between us as to the merits of his suggestions and the merits of mine. I think my attorney has at least one note written by Mr. Dickson to one of my sons in which he promises to confer with me in regard to matters connected with arrangements that were then being made for beginning the work of constructing apparatus for projection. I find that this was in the latter part of October, 1894. 2588

XQ163. Since commencing your last answer you have examined what you understand to be the letter therein referred to, have you not? 2589

A. Only very cursorily. I could not possibly give the entire contents of the communication.

XQ164. Will you please look at the letter again? Having done so, state wherein you find any statement of Mr. Dickson's that he was to confer with you in relation to his proposed efforts?

A. The last sentence of the communication is "Will talk over everything else I may think of with your father." The letter begins with "Dear Otway," and was written to my son, Otway Latham. The first sentence is, "I have discussed

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the matter very fully with Mr. Lauste, and we have come to a clear understanding what we shall do in the future." That means that he had carried out a promise previously made to my sons to employ Mr. Lauste, at their expense, to do the mechanical work that was to be done, and that he had explained to Mr. Lauste the kind of work he wished Mr. Lauste to do. The letter goes on to say, "He will come to me for direction, and when I can will go to New York." At this time (that is, at the time of the writing of this letter) Mr. Dick-

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son had entered into no written obligation to have made, or to superintend the making of, apparatus for projection of his own invention, but had promised verbally again and again to put my sons in the way of having such apparatus constructed. Up to that time there had been nothing to make my sons or me believe that Mr. Dickson was incapable of doing what he had promised. We had endeavored to induce him to disclose his device to us, but he had, by evasion or otherwise, invariably failed to do so. He had claimed that he was the real inventor of the Edison kinetoscope, and we had not,

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at that time, seen a book written by himself and his sister in which the credit of the invention was given to Mr. Edison. After seeing that book, and after considering how impossible it had been to bring Mr. Dickson to the point of promising in writing to provide the apparatus desired, I at least began to mistrust him strongly. I had received frequent invitations from himself and his wife to visit them at their home in Orange, New Jersey, and my recollection is that I did visit them in company with my son, Gray Latham, on the night of October the 19th, 1894. After dinner though there were several persons present besides

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Mr. and Mrs. Dickson, my son and myself, Mrs. Dickson invited my son and myself to come with her and Mr. Dickson to another room. She then said that she desired to talk and to have Mr. Dickson talk in my presence and to me about the matters that my sons and Mr. Dickson had so long been discussing. My recollection is the conversation was prolonged till near twelve o'clock, that night. I had stated that the matters between Mr. Dickson and my son were things that I personally had nothing to do with. Mrs. Dickson, however, and Mr. Dickson declared that they had confidence in my judgment and that they would like to have my opinion as to how far Mr. Dickson could do for my sons the things he had promised to do consistently with his duty to Mr. Edison, or, rather, in such a way as that Mr. Edison could not have ground for complaining of Mr. Dickson, and for discharging him from the position which he then held with Mr. Edison. The answer I gave him was substantially that it was impossible for me to express an opinion upon such a question unless I knew just what contract Mr. Dickson was under with Mr. Edison. I said distinctly that I did not believe my sons would be willing to ask Mr. Dickson to do any dishonorable thing, and that, as a matter of fact they had informed me that they had only been endeavoring to bind Mr. Dickson to a promise that he had voluntarily made to them so that they might use that promise in inducing some friends of theirs to contribute money towards the cost of manufacturing the apparatus. Both Mr. and Mrs. Dickson complimented me effusively on the wise and honorable spirit I had exhibited, but the upshot of the matter was simply that Mr. Dickson signed a promise that he would see to it that

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*Latham, Interference Deposition.*

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whatever strips of pictures might be required should be had by my sons. My understanding of the writing was that it was a veiled promise to make for my sons an apparatus for photographing pictures, but that whether he should do that or not, he would see to it that they should not lack pictures; that is, that he would arrange to supply them or have them supplied, with the Edison pictures. The sole purpose of my sons, at that time, was to provide themselves with the means of making public exhibitions of pictures of movement upon a screen, and it was not their expectation, primarily, at least, to go into the business of manufacturing for sale the necessary apparatus for such exhibitions. The promise at the end of the note to talk over everything else with me was obviously in response to what he knew to be my sons' desire, that they should not be subjected to expense in doing work that I did not approve of; and indeed, before the very first step was subsequently taken by the mechanic in the making of the arresting device suggested by Mr. Dickson. Mr. Dickson came to my room at the Bartholdi Hotel, made drawings of the device and asked my opinion of it. I strongly expressed a doubt of its efficiency, but expressed the opinion to my sons that it might be well to have the thing made and tried. It was made and tried and it failed, and when, sometime in January, the machine had been completed, as I recollect the date, it included not one single thing suggested by Mr. Dickson except what had been included in the Edison kinetoscope.

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Mr. Marble: All of the answer after the word "father" at the end of the quotation from the letter referred to in the question

*Latham, Interference Deposition.*

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is objected to as irresponsible, volunteered and a plain and bald attempt to discredit a witness which counsel for Latham has given notice that he is to call in this case.

XQ165. How long did these conferences between yourself and Mr. Dickson continue?

A. I have already testified that in July or August, 1894, I endeavored to explain to two of my sons how such apparatus as they desired might be constructed. A short time after that they mentioned the matter to Mr. Dickson and my recollection is that in another short time Mr. Dickson's conferences with me began. They continued from that time to the time when Mr. Dickson severed his connection with the Lambda Company, a connection which began, if my recollection serves me, in the early part of May, 1895, and continued till some time in August of the same year.

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XQ166. When was one-fourth of the stock of the Lambda Company issued to Mr. Brown for Mr. Dickson's benefit?

Mr. Bowen: Objected to as immaterial.

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A. My recollection is that the stock was issued to Mr. Brown in the early part of the year 1895. There is nothing on the stock certificates to indicate that the stock was issued in whole or part for Mr. Dickson's benefit. Other stock had been issued to other parties and the delay in issuing the stock to Mr. Brown arose from an objection made by one of my sons at least that Mr. Dickson had not complied with the promise he had made in such a way as to entitle him to so much of the stock of the company. My advice to them was to let the stock

*Latham, Interference Deposition.*

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be issued, because it was better to err on that side than the other, and that Mr. Dickson certainly had tried to perfect the devices for projecting and that his failure had arisen in my opinion, not because he had made the promise dishonestly, but because he had persuaded himself that appliances untried would certainly be effective.

2603 XQ167. There was \$120,000 par value of stock of the Lambda Company issued to Mr. Brown in pursuance of the agreement mentioned in your answer to direct question 39 for Mr. Dickson's benefit, was there not?

Mr. Bowen: Objected to as immaterial and irrelevant.

2604 A. There was issued to Mr. Brown one-fourth of the entire stock, namely, \$125,000 worth. Of that \$125,000 dollars' worth, \$5,000 was subsequently transferred by Mr. Brown, either directly or indirectly, I don't remember, to the mechanic, E. W. Kleinert, at the instance of my son, Gray Latham. Gray Latham and Otway Latham had previously given to the other mechanic, E. Lauste, \$20,000 in stock, and it was argued that it would be wise to make some gift of stock to E. W. Kleinert as well and that it would be just for the contribution to Kleinert to be made by Mr. Brown.

XQ168. This \$125,000, par value, of the stock of the Lambda Company was issued to Mr. Brown, was it not for the benefit of Mr. Dickson, and in pursuance of the arrangement that had been made with him about which you have testified and for the reason stated in your answer to Q39?

Mr. Bowen: Objected to as immaterial.

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A. My understanding was that it was issued to Mr. Brown for Mr. Dickson's benefit, and for the reason stated by me in my answer to XQ166.

XQ169. Please describe the apparatus which you say Mr. Dickson showed and explained to you referred to in your answer to Question 9?

A. There is no such apparatus that I can find mentioned in my answer to Question 9. The only apparatus mentioned in Question 9 is apparatus brought by W. K. L. Dickson, as I understood from the laboratory of Mr. Thomas A. Edison to one of the rooms in Columbia College. That apparatus is referred to in a letter, from W. K. L. Dickson to my son, of October 12, 1894, in these words: "I brought the old model, had much difficulty in getting it."

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XQ170. In your answer to direct question 15 you say: "I have already stated that in the month of October, possibly in the month of September, there was experimentation with the use of what I was told by Mr. Dickson, was the original model of the Edison Kinetoscope." Was not the model thus mentioned, the one you experimented with as stated in your answer to direct question 9?

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A. It was.

XQ171. Please describe this model with which you say you experimented in October, possibly in September, 1894, which Mr. Dickson told you was the original model of the Edison kinetoscope?

A. It is impossible at this instance for me to describe it minutely; it was simply sprocket machinery, such as appears in the Edison kinetoscope for moving the picture strip uniformly across the optical axis with a shutter to give momentary exposures of the pictures to the light. I have spoken of

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that experimentation as mine, because it was conducted by Mr. Dickson and one of my sons in pursuance of suggestions and general direction given by me. The experimentation, so-called was conducted sometimes in my presence and sometimes not. It consisted in nothing more than the use of the appliance and picture strips brought by Mr. Dickson in connection with a variety of condensers and one or more electric lamps. My recollection is that one of the lamps used belonged to Columbia College, and that another one I had obtained from J. B. Colt & Company. Most of the condensers employed were provided by me. The trials

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made with these things are hardly worthy of the name experimentation because genuine experimentation is a process largely of elimination made systematically. I soon discovered that Mr. Dickson, without any sort of method, would try first one thing and then another, and that none of the results obtained were satisfactory. Mr. Dickson's explanation was that the light on the screen was deficient because of the circumstance that the film employed by Mr. Edison, some of which we had

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been using was not sufficiently translucent, but the conclusion that was forced upon me was that the fault was mainly with the condensers we had been employing and it was not until some months afterwards that we succeeded in making such projection as we believed would be satisfactory to the public by the use of a machine moving the film continuously across the optical axis.

XQ172. Can you tell what month it was that you succeeded in projecting a picture on the screen as stated in your last answer, you thought would be satisfactory to the public?

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A. My expression "satisfactory to the public" cannot be properly understood without considering that at that time the purpose was simply and solely to devise an appliance by means of which pictures of objects in motion might be thrown upon a screen so vividly as to be seen distinctly by a very large number of people at once. My recollection is that with this machine for continuously moving the film across the optical axis fairly satisfactory projections were made as early as October, 1894. The one single objection to them was that the light was not sufficient. No fault in the machinery was discovered, but simply that the pictures were not sufficiently distinct to be seen clearly at a considerable distance.

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XQ173. If your last answer is correct, why did you say in your answer to XQ171, after describing what was done in September or October, 1894, "it was not until some months afterwards that we succeeded in making such projections as we believed would be satisfactory to the public by the use of a machine moving the film continuously across the optical axis?"

A. I cannot see any inconsistency. If you will kindly point out the inconsistency you refer to, I will endeavor to explain it.

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XQ174. In XQ171 you were asked to describe the model which you experimented with in October, possibly in September, 1894, which Mr. Dickson told you was the original model of the Edison kinetoscope. You answered that question by saying that you could not, at this distance, describe it minutely, and then you went on to tell of experiments which, you say, were conducted by Mr. Dickson and one of your sons sometimes in your

*Latham, Interference Deposition.*

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presence with this model, but you say near the end of your answer, "It was not until some months afterwards that we succeeded in making such projection as we believed would be satisfactory to the public by the use of a machine moving the films continuously across the optical axis;" and then in your next answer, XQ172, you say that in your recollection, "that with this machine for continuously moving the film across the optical axis fairly satisfactory projections were made as early as October, 1894;" now, do you still consider these answers consistent.

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A. Perfectly so, because a thing might be fairly satisfactory in appearance to a dozen people standing ten feet off and so satisfactory as to justify the confident belief that with slight alterations still better effects could be obtained and yet be utterly unsatisfactory to people at the distance of 50 feet. What I meant by satisfactory to the public was this, that it would be satisfactory to the entire body of spectators usually coming together in large theaters, or public halls. Even as late as July, 1895, Mr. Sandow was negotiating for the

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privilege of introducing the appliance into England, and objected that he could do nothing with it, or was not willing to undertake to introduce it into England, unless we could make the light on the screens better, and to-day, so far as I know, the one single valid objection to a machine moving the film continuously is that the light upon the screen is apt to be less than where the film is stopped at the moments of projection. Notwithstanding this one objection, it is the opinion to-day of some that all things considered, the machine that runs the film continuously is superior to the

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machine that runs the film by intermittent movement.

XQ175. What did you mean in your answer to XQ171 by the words "it was not until some months afterwards," as there used and in the connection used?

A. I had observed in the aforementioned so-called experimentations that the more complicated and the more expensive the condenser employed was, the less good were the results. The condensers commonly employed in stereopticons are composed of two or more lenses mounted in connection with one another and I very early came to the conclusion that there was reason to expect very much better results than had been obtained if a single small lens should be employed as a condenser. For some while after results had been obtained by the use of condensers purchased of J. B. Colt & Company that were satisfactory or fairly so to my sons, I insisted that the proper plan was to throw away such combinations and to employ a single small lens. Strolling along the streets of New York, I think it was in the early part of March, 1895, I saw a small lens in a window of a store and bought it. Some days afterwards that lens was mounted and used and it was found that it gave a greatly superior light to what had been obtained by the use of the condensers bought of J. B. Colt & Company. This is what I meant by the words "it was not until some months afterwards."

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XQ176. These experiments which were made in October, 1894, where you say "fairly satisfactory projections were made," were the experiments conducted by Mr. Dickson with the aid of your sons, were they not?

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A. They were, as well as with the aid of myself, because without the appliances that I supplied him with he could not have made the experiments.

XQ177. In view of your last answer and the answer to XQ172, in which you say "fairly satisfactory projections were made as early as October, 1894," why do you say that Mr. Dickson didn't accomplish anything as he promised to do?

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A. Mr. Dickson promised to furnish plans for the construction of an apparatus which he said he positively knew would be thoroughly efficient in photographing and in projecting pictures of movement. The so-called experimentation referred to consisted of nothing less than running a piece of film through what was said to be the original model of Edison's kinetoscope, and at the same time in placing this appliance in a position with reference to a screen on the one hand and a lamp and condenser on the other, with the view of seeing whether or not a light strong enough could be brought to bear upon the rapidly moving pictures to produce an appearance upon the screen to any extent satisfactory. The appliance for moving the film had in connection with it not the spools, around which the film is looped in the Edison kinetoscope; and short pieces of film were simply fed into the appliance and allowed to run through it between the light and the screen. Mr. Dickson, as far as I remember, did not himself think that such experimentation was even the beginning of a carrying out of his promise. The promise was to be carried out as soon as a shop and workmen and machinery could be provided.

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XQ178. Mr. Dickson was the only person who had anything to do with these experiments, who had had any experience before in the projection of

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pictures on a screen that you had with you; is this not so?

A. As Professor of Physics it had been frequently my business to project still pictures with the ordinary magic lantern. Mr. Dickson had had no experience at that time in projecting pictures of movement; at least, he certainly never claimed to have had, and, so far as I know, nobody connected with the experimentation had had any such experience.

XQ179. Mr. Dickson continued to make these experiments, did he not, until 1895, and for several months thereafter? 2624

A. I do not remember how long he continued them, but in his hands the experimentation resulted in nothing more than has been heretofore stated by me.

XQ180. He was certainly experimenting as late as February, 1895, was he not?

A. The experimentation referred to as having occurred in February, 1895, was experimentation of a totally different sort; it was experimentation to see whether or not the machine I had devised and had had constructed would photograph pictures of movement. The experimentation of the previous year had relation to the question whether or not a suitable light could be commanded for use with a machine carrying the film continuously; what has been called the experimentation of February, 1895, was simply the trial of a completed photographing machine, and the pictures taken at that time have already been submitted in this case. 2625

XQ181. Was this agreement that you have spoken of several times with Mr. Dickson ever reduced to writing, or expressed in any written paper?

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A. My recollection is that after frequent efforts on the part of my sons to induce him to commit himself to writing, an arrangement was made under which Mr. and Mrs. Dickson met my son, Otway Latham, in the presence of Mr. Edmond Congar Brown and Mr. John Murray Mitchell, now member of Congress from New York City, and that at that meeting the agreement made by Mr. Dickson, or by Mr. Brown, acting for him, was reduced to writing. I do not know it of my own knowledge, but my understanding has been that the papers properly belonging to my sons have remained in the hands of Mr. John Murray Mitchell.

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XQ182. Can you get those papers as far as they relate to Mr. Dickson?

A. I am not a lawyer and I do not know how to proceed in a case of that sort. Mr. Mitchell might be summoned to testify as to that agreement, because he knows a great deal better what the terms of it were, and what Mr. Dickson's promises were, than I do.

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XQ183. If it is a fact that in the fall of 1894, and prior to the time you commenced these experiments with the Edison model, you had made the invention that you now claim in projecting machines, and knew how it should be set up and operated, why did you want to have the invention made by Mr. Dickson and have him construct the apparatus and agree to give him one-fourth of the capital stock of your company for his services?

A. I have not stated at any time that I wanted to have the invention made by Mr. Dickson, or have him construct the apparatus, and I did not agree to give him anything, and entered into no sort of contract with him touching the stock of the Lambda Company. If at any time in referring to

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these matters I have used the word "we," in speaking of the actions of my sons, it was done inadvertently. I was not present at the meeting referred to in the presence of Mr. Brown and Mr. Mitchell, and I was not present on any occasion when Mr. Dickson entered into any agreement with my sons except the one already referred to as having occurred, according to my recollection, at Mr. Dickson's house in Orange, N. J., on the night of October 19, 1894.

XQ184. You adopted this contract made by your sons with Mr. Dickson as if made by yourself, did you not? 2630

A. I did not. I had no authority to adopt it or to reject it.

XQ185. You advised, did you not, the issuance to Mr. Dickson, or Mr. Brown for him, of one-fourth of the stock of the Lambda Company, to wit: \$125,000 par value?

A. At the time I gave that advice I had become a member of the Lambda Company, and I have already stated the circumstances under which the advice was given.

XQ186. The issuance and delivery of that \$125,000 in stock was simply the fulfillment, was it not, of the agreement which you say your sons made with Mr. Dickson? 2631

Mr. Bowen: Objected to as calling for hearsay testimony.

A. If I were to say yes to that question as it seems you desire me to say, it would be in direct contradiction of the explanation of the circumstances that I have already made in perfectly plain English. I consequently say most emphatically

*Latham, Interference Deposition.*

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No, for the reason that both my sons and I were thoroughly satisfied at the time that neither Mr. Dickson nor Mr. Brown had complied with their promises.

XQ187. When did your relations with the people who now have, as you say you think, the three photographing machines and the five projecting machines about which you have testified, become so strained that you do not think that they would let you have the first machine or anyone that you might send for it?

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A. I do not think that I have declared it as my belief that the five projecting machines are likely to be found at 101 Beekman street, but I did express it as my belief that the three machines for photographing purposes might be there. My relations with the Eidoloscope Company were broken in the early summer of 1896. One cause of the rupture was a demand from the Eidoloscope Company that I would turn over to them, as their property, the application for a patent, filed June 1, 1896, on the machine involved in this interference. Subsequently suit was brought by them in a Court of law in New York City to secure from me title to the application and their suit failed.

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XQ188. Was this demand of the Eidoloscope Company on you for an application for a patent on the machine about which you have testified, made before or after June 1, 1896?

A. It could not have been made much before June the 1st, because the application was filed on June the 1st. Just exactly when the demand was first made, I do not know.

XQ189. Was there more than one demand made on you?

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A. The Eidoloscope Company was controlled by three or four men, who owned the majority of stock, and one or more of these men repeatedly made the demand of me. I do not remember that at any time, prior to the expulsion of my sons from the company, there was any formal demand made by the company through its directors. Indeed, I am not absolutely certain that a formal demand was ever sent to me. It was well known, however, to them all that I considered that they were demanding of me what I was under no legal or moral obligation to give to them and that I had persistently refused to accede to their wishes. Later they expelled me, and still later it was, I think, that they brought the suit against me I have just mentioned.

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XQ190. When was it they expelled your sons?

Mr. Bowen: Objected to as immaterial.

A. I do not remember exactly; my impression is they were expelled in June or July, 1896, and that very shortly afterwards they told me that my services were dispensed with.

XQ191. What do you mean by being expelled and your sons being expelled?

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A. One of my sons was secretary of the Eidoloscope Company, as I was informed, under the charter. They deprived him of his office, whether legally or illegally, I do not know, and appointed another secretary. Both my sons and I myself had been paid stipulated salaries. What I meant by the expulsion of us all was, that our salaries were stopped, that our property was retained and that we no longer had any sort of connection with the Eidoloscope Company. We all believed, and do

*Latham, Interference Deposition.*

2638

believe now, that our rights were grossly invaded and a suit was begun against the other members of the company, but for the want of funds we were unable to prosecute it. My recollection is that we were joined in that suit by some of the creditors of the Eidoloscope Company, or possibly by men whose claims against the Lambda Company the Eidoloscope Company had agreed to pay, but my recollection as to that is not clear.

XQ192. Were you and one of your sons directors in this company?

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A. Only my youngest son, Otway Latham, was a director; he was secretary also, as I have stated. My other son and I had been urged by the men who afterwards became hostile to us to become charter members and directors of the company prior to its organization, but we declined to do so.

XQ193. What were you paid a salary for?

Mr. Bowen: Objected to as immaterial.

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A. It was understood that my services were to be of an advisory sort touching the scientific questions connected with the manufacture of the apparatus and the production of pictures.

XQ194. When did this bad feeling between you and the other members of this company first commence?

A. That I am unable to say, sir.

XQ195. When did you last have access to the offices and place of business of the Eidoloscope Company?

A. My recollection is that I was last at their place of business, some time in July, 1896.

XQ196. How did any of the members of that company know that you intended to make an ap-

2641

plication for a patent which you did make on June 1, 1896?

A. My recollection is that the president of the company, Mr. Lindley Vinton, rendered some assistance, or at any rate, made some suggestions touching the application. About this, however, I may be mistaken, and I may be confounding this application with a preceding application which Mr. Vinton had something to do with, and which was included in the decision of the Court against them and in my favor, which I just now referred to.

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XQ197. In what Court was that suit brought?

A. It is very easy for me to get definite information upon that matter, but I can only give you now impressions, as I did not attend the trial of the case. My recollection is that my attorney told me that Judge Beekman decided the case, and my impression also is that Judge Beekman was one of the Judges of the Supreme Court.

XQ198. Do you know how the case was entitled?

A. I do not, sir, but the gentleman who acted as my attorney in the case, Mr. Edwin T. Taliaferro, has an office in the building at 132 Nassau street.

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XQ199. You have told us who made the drawings for your application involved in this case; where did he get the information with which to make those drawings, if you know?

A. I am glad of an opportunity to answer the question, because not only in this case, but in several other preceding cases of application, the drawings were made, not when the machine was a mere conception, but after it had been completed and tried and proved efficient.

XQ200. You have not answered my question and therefore I repeat it (XQ199 repeated)?

*Latham, Interference Deposition.*

2644

A. He got the information by seeing one or more of the three machines that had, up to that time, been completed of the one model.

XQ201. When did he see such machines, if you know?

A. I think that question has been asked me heretofore, and must make the same answer, that I do not remember.

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XQ202. You are mistaken in thinking that question has been asked you before, but if you do not remember when he saw the machine or when he made the drawings, can you tell whether or not he saw one of these machines before they became the property of the Eidoloscope Company?

A. I cannot tell.

XQ203. If you had made this invention as you claim before December 28, 1895, why did you not make an application for a patent for this alleged invention instead of making the application for patent on the continuously moving film machine, which you filed on that date?

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A. Prior to the organization of the Lambda Company, I succeeded in making pecuniary arrangements for one application and I chose to make that application on the machine for continuous movement of the film partly at least because I believed it was a better appliance for exhibiting the pictures. Not long after the application was sent in, the Lambda Company got possession of the other machine and its directors at their first meeting, if my recollection serves me, adopted a resolution to the effect that the Lambda Company would purchase of me any patents I might have applied for and any that I might obtain in the future, but the directors also resolved at that same meeting that in their opinion it was inexpedient

for me at that time to apply for a patent for the other machine. The matter was allowed to rest (mainly, doubtless, because many other things engaged the attention of the members of the Lambda Company) until somewhere after the Eidoloscope Company came into possession of the assets of the Lambda Company and just what circumstances induced me finally to make application for a patent on the other machine, I cannot now recall. Wherever in this answer I have used the expression "other machine," my reference has been to the machine involved in this interference.

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XQ204. Do you know why the directors of the Lambda Company resolved that it was inexpedient for you to make application on the "other machine" at the time they passed that resolution?

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A. I do not. Possibly one consideration may have influenced one of the voters and another consideration another. I do not recollect that any one of the directors mentioned the basis of his opinion.

XQ205. The Lambda Company was formed, according to your testimony, in December, 1894? When was this first meeting of the Board of Directors held, if you know?

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A. My recollection is it was held some two or three months afterwards, though I am not certain about that.

XQ206. Did the Secretary of the Lambda Company keep minutes of the meetings of the Board of Directors of the Lambda Company?

A. He did.

XQ207. Is that book of minutes in existence now?

A. I presume so, sir.

XQ208. You were the secretary of the company at the time of this first meeting of the Board of Directors, were you not?

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A. I was.

XQ209. If the minutes which you made at that meeting are still in existence can you produce them?

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A. I possibly may be able to produce them. When the property of the Lambda Company passed to the Eidoloscope Company, some of the papers of the Lambda Company, if my recollection serves me, were transferred to the directors of the Eidoloscope Company. All the papers of the Lambda Company that were not so transferred, or that were not put into the hands of Mr. Edwin T. Taliaferro, or other attorneys employed to look after the interests of the Lambda Company, have been preserved carefully by me and among the books and papers I preserved may be the minutes referred to. What my duty is or rather, what it would be, if I should discover that I have the minutes of the meetings of the directors of the Lambda Company, I do not know. Of course I hold myself responsible to the Lambda Company and I should not like to part with any property of the Lambda Company, otherwise than legally.

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XQ210. All I desire is to fix the date of this first meeting of the Board of Directors of the Lambda Company and if you will bring the minutes of that meeting here, your counsel and myself can agree upon a statement of the date of the meeting without your parting with the paper or papers or books. With this understanding will you see if you can get the minutes giving the date of the first meeting of the Board of the Lambda Company and produce it here at our next session?

A. I will.

XQ211. All of the members constituting the Board of Directors of the Lambda Company had

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seen the apparatus called by you the "other machine" and had seen what it would do before it passed the resolution that it would be inexpedient for you to have a patent taken on it?

A. My recollection is that every one of them had seen it, and knew that it was a machine to be used in the future solely for photographing pictures. To what other extent, if any, they were acquainted with the machine, I do not know, except so far as my sons and myself are concerned. All three of us were directors in the Lambda Company and of course we knew all about the machine.

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XQ212. How many directors were there of the Lambda Company at the time this resolution was passed that it was inexpedient to take a patent on the other machine so called; that is, how many of said directors were present?

Mr. Bowen: The question is objected to unless it is understood that after "inexpedient to take a patent" the words "at that time" are inserted, since that is what the witness has stated.

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A. I do not remember. I do remember, however, that the motion was made by Mr. W. L. Voight, a director from Cincinnati, Ohio. My recollection is that there were seven directors in all of the Lambda Company, but whether all of the seven were present at the meeting referred to, I do not remember.

XQ213. Then your sons, one or both and yourself voted for this resolution, did they, that it was inexpedient at that time to apply for a patent on the "other machine," so called?

A. It is altogether possible, but I do not remember. All questions involving the expenditure of

*Latham, Interference Deposition.*

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money, at that time, I remember I was disposed to leave to the determination of those from whom most of the money for the enterprise had been obtained. My recollection is that Mr. Voight, the mover of the resolution, referred to, was one of the largest contributors, if not the largest of all.

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XQ214. As I understand your answer to XQ203, the resolution passed by the Board of Directors was to the effect that they would purchase your patent, not that it would pay the expenses of the application that you might file or want to file? Is this correct?

A. Certainly; but the Directors of the Lambda Company were mutual friends and each understood the pecuniary condition of the other, and they all knew that I had no money at that time to spare for patent applications. If, instead of adopting the resolutions they did adopt, they had adopted one requesting me to apply for a patent I should have promptly replied that it was impossible for me to do so unless they advanced me the money for the purpose.

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XQ215. In direct question 27, you were asked to state the difference between a taking and a projecting machine in this art as you understand the matter, and you gave answer to that question, but stated the functions performed. Now, will you please state the differences between the taking and projecting machines in construction?

Counsel for Latham objects to the question unless it is made more specific; that is, unless the witness is asked to explain the difference between some particular taking machine and some particular machine that is adapted merely for projection.

*Latham, Interference Deposition.*

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Mr. Marble: The attention of the Commissioner of Patents is particularly called to direct question 27 propounded by counsel for Latham, which question the witness answered, and that in said question 27 there is no particular machine referred to such as now the counsel would like to have incorporated in the present question. Counsel for Casler says that the objection made by counsel for Latham sounds very much like coaching the witness.

Mr. Bowen states that he is much obliged to Mr. Marble for the compliment. The difference between direct question 27 and the question now asked the witness on cross-examination is, that the direct question did not call for a description of the construction of any machine, but simply for a definition of the two machines whereby they might be differentiated.

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A. I will begin by endeavoring to give the necessary constituent parts of a machine for projecting pictures, by means of a continuously running film. The film may be in the form of an endless band; that is, its ends may be cemented together. As the film moves continuously in such machine, there must be a shutter to expose the pictures in succession to the light and to cut off the light between the times of exposure of any two pictures. There must be some device for feeding the film across the optical axis, and the devices heretofore employed for such purpose, so far as I know, are a pair of rollers, both of them smooth, or one of them with sprockets around its circumference. There must be at the optical axis an appliance for

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clamping the film lightly, so as to keep it flat at the times of exposure. There must be thrown upon the pictures a light of sufficient intensity, and on the opposite side of the film from the light there must be what is known as an objective. In such machines it is obviously necessary either to place the light within the endless band of the film or to place the light at one side and to use a mirror for reflecting it upon the film at the proper place.

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If the film is not in the form of an endless band, but is loaded upon a reel, that reel may be placed above the apparatus and the film be drawn across the optical axis and allowed to drop on the floor or into a box or other receptacle, or a second reel may be employed to receive the film after it has passed across the optical axis. Where such a second reel is employed it is necessary to have a device for making the circumferential movement of the film around the reel uniform; that is, a device by means of which the receiving reel is made to take up the film as fast as it runs through the rollers employed for dragging it across the optical axis. It is necessary that the exposures made by the shutter shall occur at proper times and that there shall be an

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exposure for each picture. The movement of the shutter, therefore, must bear a fixed relation to the length of film fed through the dragging rollers during one revolution of the shutter or between two consecutive exposures made by the shutter. Sprocket wheels were in the beginning employed for the most part for dragging the film across the optical axis, and for the reason that a definite number of sprockets on the circumference of the sprocket wheel were made to enter the same number of holes in each picture, so that if around each edge of the circumference of the wheel there were

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sixteen sprockets and on each edge of each picture there were four perforations to receive the sprockets, one revolution of the sprocket wheel would invariably carry forward with an approach to accuracy for four pictures, and if the sprocket wheel were so geared to the shutter as that the shutter should make four exposures during one revolution of the sprocket wheel, such a machine could be relied on to bring the pictures to the optical axis substantially at the times of exposure, but sprocket wheels were found to be objectionable, because they would stretch the holes in the films and sometimes break them out, and a number of machines have been made that employ two smooth rollers, instead of a sprocket wheel, with a roller to hold the film on it. Smooth rollers, I believe were suggested before pictures were properly projected by the use of sprocket wheels, but those who suggested the use of smooth rollers seem not to have understood how to use them successfully and, so far as I know, it is since the very general use of sprocket wheels that smooth rollers have been used successfully.

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Now, if I had a machine like one such as I have tried to describe and wished to convert it into a machine for moving the film intermittently across the optical axis it would be necessary for me to introduce between the optical axis and what I have called the dragging rollers, some eccentric device for jerking the film quickly across the optical axis or to arrange that the devices for drawing the film across the optical axis should exert a force upon the film that might be overcome without stopping their movement and without breaking the film and then add a device for clamping the film intermittently on the other side of the optical axis. There may be other ways of accomplishing this purpose,

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but I do not know that any other expedients for the purpose have been employed. It is easy to see if the film is drawn continuously across the optical axis, and a delivering reel is employed, that it may be drawn directly from the delivering reel, and it is simply necessary that the reel shall turn with some degree of friction around its shaft. If the reel be a small one the film may be drawn from it in the same way where there is a device for moving the film intermittently across the optical axis and I have repeatedly run film through such machines in that way. Of course, however, there

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is always danger of breaking the film by jerking it when the jerk must communicate its force to the loaded reel and cause the latter to revolve, hence it becomes necessary, especially where large reels are employed to devise an arrangement for producing a loop on the side of the optical axis opposite to that of the appliance for drawing the film rapidly across the optical axis. Such a loop is maintained in all intermittently moving apparatus that I have constructed and in all that I know anything about by simply having two sets of wheels or rollers, one

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that I have already called the dragging rollers, the other a pair precisely like these placed on the opposite side of the optical axis. If this latter pair of feed rollers is made in revolving to feed the film at a certain rate, the dragging rollers in revolving may be made to take up the film at the same rate, provided one of each pair of rollers is sprocketed. If the rollers are not sprocketed, it becomes necessary to use devices to make them carry the film equally, otherwise the loop would become unduly large or would disappear altogether. In speaking of the devices for moving the film at intervals rapidly across the optical axis, I should

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have mentioned perhaps that the device employed for this purpose may be a sprocket wheel, such as is shown in the application filed June 1, 1896, and involved in this interference, or a pair of smooth rollers which the film is constantly in contact with; or some kind of eccentric device, as for example a crank might be employed to pull the film at intervals across the optical axis with which device the film is only intermittently in contact.

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Any machine, including the device for moving the film intermittently across the optical axis can be employed successfully in photographing pictures, provided the pause of the film at the optical axis, which such a machine causes in its operation shall be of the proper length, and provided the whole apparatus is covered so as to exclude the light and a photographic objective is employed. On the other hand, any apparatus which is suitable for photographing objects in movement can be employed in projecting the pictures, provided the covering is taken off and a projecting lens be employed in place of the photographic objective, and provided a suitable light be at command. I should like to add to this answer after reading it over that when in referring to the means for maintaining a loop I said that the loop is maintained by having two sets of wheels or rollers, &c., in all intermittently moving apparatus that I knew anything about, I meant in all intermittently moving apparatus made by others than myself that I knew anything about.

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Adjourned to December 9, 1897, at 11 a. m.

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New York, December 9, 1897.

Met pursuant to adjournment.  
Present—Parties as before.

Continuation of the cross-examination of WOOD-  
VILLE LATHAM:

By Mr. Marble:

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XQ216. Did you find the minutes which you kept of the first meeting of the Board of Directors of the Lambda Company after it was organized?

A. I did; as I was told that the simple desire was to fix the date of that meeting, I concluded that the giving of that date would be sufficient and that I need not trouble myself to bring the whole book. The date was April 20, 1895.

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It is hereby stipulated by and between the parties to this controversy in view of the witness's last answer, that the first meeting of the Board of Directors of the Lambda Company, about which the witness has testified, was held on the 20th day of April, 1895.

The witness says that he wishes to correct his testimony given heretofore as to drawings made by him.

Since the session of yesterday, I have found a drawing made by me that I had not remembered. There is no date to the drawing but there is a representation of the essential features of the apparatus involved in this interference, and there is writing on the paper touching another device that I once had in mind that leads me to the conclusion that

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the drawing was made prior to January, 1895, but the circumstances under which the drawing was made I cannot clearly recall.

XQ217. You have referred to a paper on which you say there is a drawing. Before being sworn as a witness had you made search for any and all drawings pertaining to your apparatus described and illustrated in your application involved in this interference?

A. Repeatedly, because my attorney had told me that it was desirable that I should be prepared to show such drawings. I found the drawing last night accidentally at a place where I should never have thought of looking for it.

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XQ218. Did you look for other drawings then?

A. I did, sir.

XQ219. Did you find any other drawings?

A. No.

XQ220. You have given the date of the first meeting of the Board of Directors of the Lambda Company as April 20, 1895, and you testified yesterday that said Board of Directors at that meeting passed a resolution that it was inexpedient at that time for you to apply for a patent on the apparatus described in your application involved in this interference. At the time of said meeting did any of the Directors of said Board other than yourself and sons know that said apparatus could be used for any other purpose than taking pictures?

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A. I do not know, sir. My recollection, however, is that prior to that time I was informed by my son, Otway Latham, that he had projected pictures by the use of that apparatus in order that some of the directors who happened to be in New York from their homes outside of New York might see the operation.

*Latham, Interference Deposition.*

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Mr. Marble: All the last answer after the words "I do not know, sir," is objected to as hearsay and volunteered.

XQ221. The apparatus which you say the Board resolved it would be inexpedient to apply for a patent on, was generally known to your company as an apparatus for photographing objects in motion up to and including April 20, 1895, was it not?

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A. It was known to the members of the Lambda Company as a photographic apparatus not only up to the time mentioned in the question, but was so known to the Lambda Company up to the time when its assets were transferred to the Eidoloscope Company. It was transferred by me to the Lambda Company as an apparatus to be used in photographing pictures.

XQ222. I wish you would point out and name all of the devices, whatever they are, that are shown in the drawings of your application involved in this interference which you say were added to your first machine and which appear in the drawings?

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A. In Fig. 1, sheet 1, of the drawings (as shown in the certified copy of the file and contents of my application involved in this interference which has been identified) there are shown a cord numbered 30a and a cord tension device marked 61 and 62, not to be bound in the apparatus as first constructed. There is a friction device for regulating the force coming from the motor employed for actuating the machine, with the numbers 64 and 66 near it, which was not a part of the first machine. The appliances I have referred to appear on sheet No. 2, Fig. 2 and sheet No. 3, Fig. 3; and on sheet

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No. 4 Fig. 9, is a representation of the frictional device referred to. My recollection is that the representation of rollers 57a and 58a in Fig. 7 of sheet 4 are not just what they were in the first machine. I am not absolutely certain that any such rollers were employed in the first machine, but my recollection is that they were employed and mounted somewhat differently from the way in which they are shown in these drawings. There was in the frame work—that is, in the supports—of the essential parts of the apparatus first constructed a considerable difference in size and form, if my recollection serves me, from what is shown in these drawings. There is absolutely nothing that I can see in the drawings to indicate a difference between what the drawings show and what the first machine was in the appliance, or means, rather, for moving the film intermittently across the optical axis. My recollection is that the bevel gear marked 32 on Fig. 2, sheet 2, was not employed in the first machine, but that instead a worm and gear were employed. Of this, however, I am not absolutely certain. I now refer to the bevel gear marked 32.

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XQ223. Have you in your last answer stated every part and device shown in the drawings of your application involved in this interference which were not to be found in the first apparatus, as you have referred to in your testimony?

A. I am quite sure that I have not, but I have referred to what I consider every essential difference. I know positively that the machine from which this drawing was made was constructed on my order by a man employed by and paid by my sons and myself, and the order was given to him in the absence of my sons from the city. The order as

*Latham, Interference Deposition.*

2686

I gave it to him was that he should make two machines precisely like the first one that had been made, and the differences to be found between the machine first made and the one from which the drawings were made are differences absolutely unessential.

Mr. Marble: The answer is objected to as irresponsible after the words "I am quite sure I have not."

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XQ224. Again I ask you to name all of the parts appearing in the drawings accompanying your application involved in this interference which were not parts of your first machine as you have spoken of it in your testimony.

I ask you this question because the Commissioner of Patents and other officers of the Patent Office have to pass upon this testimony, and they may deem parts essential which you do not deem essential, and we are simply getting at the facts so that they may have all the information that you have in relation to these machines.

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Mr. Bowen objects to the question on the ground that it is immaterial. The issue of the interference, as defined by the Patent Office, contains certain specific elements, and the question to be decided in this case is, Did the original or first machine contain such elements of the issue of interference? I therefore object to the question for the reason stated.

A. I do not think that I can answer the question otherwise than as I have already answered. There is a great deal of detail in such constructions

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that the man himself who makes the machine is unable to remember after such an interval has occurred as has occurred since I saw the apparatus in question.

XQ225. Why in your answer to cross question 223, in which you were asked if you had in your last answer stated every part and device shown in the drawings of your application involved in this interference which were not to be found in the first apparatus, as you have referred to it in your testimony, "I am quite sure that I have not"?

A. Simply because I was sure that a workman in making the second machine would introduce details not to be found in the first machine, of which the second machine was to be essentially a copy.

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XQ226. Is that all the explanation you have to give for your answer to XQ223, "I am quite sure that I have not"?

A. That is all the answer that I have to make.

XQ227. Do you know when the machine was made which did have the elements in it which you have mentioned in your testimony this morning which were not in the first machine, as you have described it?

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Mr. Bowen wishes to announce on the record at this point, in order to save time, that he is now able to produce the original machine and he will do so this afternoon, as the search that was instituted for the machine which he promised to make has resulted in finding it.

A. I have already testified on that point that my recollection is that the construction was begun in the fall of 1895. The construction may have been

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*Latham, Interference Deposition.*

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begun in the latter part of the summer of 1895. My attention at this point is drawn to the question more particularly; as to difference of elements, that one of the elements which appears on the drawings, namely, the friction device for regulating the force coming from the motor employed for actuating the machine is a separate device not necessarily forming a part of the apparatus involved in this interference or any other similar apparatus, and, as a matter of fact, has never been used by me in connection with the machine involved in this interference. It was a device appearing in a prior application for a patent made by me, and was added to the drawings and to the specifications of the application of June 1, 1896, because I had always intended to use it in connection with that apparatus, as well as in connection with the apparatus for which a patent had previously been applied for.

Recess.

\* After Recess.

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Mr. Bowen wishes to say that it is not now his intention to call as a witness in this case Mr. Armat, a party to this interference, for the reason that the necessity for so doing does not now seem to exist. Counsel was aware that the Vitascope company were making, or professed to make, a machine of Mr. Armat's design, and counsel also believed that the original machine, which has been testified about, was in the shops at 101 Beekman Street, this city, where the Vitascope people are located. Counsel does not

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know that Mr. Armat had any knowledge of this machine, and it was his purpose to ascertain by making him a witness. As the machine has been found and is now in a condition to be produced, there is no need of calling Mr. Armat.

XQ228. The drawings accompanying your application involved in this interference were made by the draughtsman, were they not, from his viewing what you have termed the second or third machine for photographing moving objects?

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A. That is my recollection.

XQ229. Where were these experiments conducted which you have testified were made by Mr. Dickson, assisted by one of your sons in October, 1894?

A. My recollection is that some of them were made in one of the rooms of Columbia College, this city, and I have an impression that some of them were made in the room at 83 Nassau Street, where my sons had for exhibition the Edison kinetoscope.

XQ230. Was there more than one experiment made at Columbia College?

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A. My memory is not very clear as to that, but my impression is that more than one meeting for the purpose was had at Columbia College.

XQ231. Mr. Dickson told you, did he not, at one or more of these meetings where he conducted the experiments, either at Columbia College or at 83 Nassau Street, that it was not new to give the film in a photographing machine for moving objects an intermittent movement?

A. He did not at such times, nor at any other time.

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XQ232. Mr. Dickson told you, did he not, that it was not new to give a picture bearing film an intermittent motion in a projecting machine, at one or more of your meetings in Columbia College, or at 83 Nassau Street, when he made the experiments you have testified to?

A. He did not on such occasions, nor on any other occasion.

XQ233. You say that Mr. Dickson suggested an arresting device. When did he suggest that device?

2699 A. The suggestion was made at or about the first of November, when my sons had secured a shop and machinery and were ready to begin the manufacture of the apparatus according to Mr. Dickson's plan; that is to say, according to Mr. Dickson's plan for arresting the movement of the film periodically at the optical axis.

XQ234. Was the necessity for such an arresting device developed during the experiments about which you have testified which were conducted by Mr. Dickson?

A. No, sir.

XQ235. When was it discovered?

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A. From the very beginning of my attention to the matter I felt sure that it would be necessary to have an apparatus with an arresting device to be used at least for photographing pictures unless arrangements could be made to get pictures otherwise, and I did not know how pictures could be obtained otherwise than by making them myself. Indeed, my first thought was to make one machine to be used for photographing and for projecting. The idea of using, for projection, the machine I had made with the arresting device was given up by me at that time, for the reason, among others, that I thought that the arresting of the film would make

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its life very short as compared with what its life would be if it were run without interruption through a machine. By the expression "at that time" which I have used, I mean the time when the machine with an arresting device had been made and tried.

XQ236. Had you devised an arresting device before Dickson suggested one to you?

A. I have never devised one to this day. There were then, as now, a great many appliances suitable for the purpose to choose from that had been used in machinery constructed for other purposes. I had not determined positively which one to try first. As a matter of fact, the one I did try first after finding that Mr. Dickson's device would not answer its purpose, was the broken gear called the Geneva stop, which succeeded and was adopted.

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XQ237. The film carrying reel and the film receiving reel which you show in your drawings accompanying the application involved in this interference are the equivalents, are they not, of film-carrying devices and film receiving devices in Edison's kinetoscope, a model of which you had in those experiments?

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Mr. Bowen: Objected to as immaterial.

A. No, sir, for two very good reasons. One of them is, that in the Edison kinetoscope a film in the form of an endless belt was used with the necessity for giving to the entire apparatus an undue bulk, and the other is that the kinetoscope was unable to carry any but a strip of moderate length. The first kinetoscope that Mr. Edison made was constructed to carry about 50 feet of film. Subsequently, and prior to my coming to New York, in

*Latham, Interference Deposition.*

2704

the summer of 1894, he had made on the special order of my sons, Otway Latham and Gray Latham, a larger machine to carry about 150 feet, after making a charge against them for experimenting with the view of determining the possibility of complying with their wishes, expressing at the time doubt of his ability to do so. By the use of reels, one for delivery and one for receiving the film, it is easy to carry with my machine several thousand feet of film at once.

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XQ238. I think an invention may be embodied in a buggy as well as in a large draft wagon. The Edison film carrying devices and film receiving devices in the kinetoscope were arranged, were they not, so as to furnish and take up the picture films used in that machine?

Mr. Bowen: Objected to as immaterial and irrelevant. It is further objected that the question is not asked with a view of bringing out facts the witness may be acquainted with, and the witness is not here as an expert.

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A. I am unable to understand what inquiry is intended to be made. The Edison kinetoscope is well known to the public, and is a thing designed for a purpose altogether different from that of the apparatus invented by me and concerned in this interference. The Edison kinetoscope has no delivering and receiving reels properly so-called, is incapable of using a film unless its ends are cemented together, includes no appliance for intermittent movement of the film across the optical axis, and cannot be used for projecting pictures.

XQ239. You testified yesterday with the Edison model of the kinetoscope you projected pic-

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tures fairly well on a screen in October, 1894; why do you now say that an Edison kinetoscope cannot be used for that purpose?

A. Because I have not testified that I ever attempted to use the Edison kinetoscope for such a purpose. What I did use was what I was told was a part of the machinery that had once been a part of an Edison kinetoscope, but I do not know of my own knowledge that even that was the truth. My informant was Mr. W. K. L. Dickson. Besides such machinery as was employed, was machinery which I have no reason to believe Mr. Edison, or any other one man in the world, had the exclusive right to use. Mr. Edison did not invent the sprocket wheel, nor gear wheels, nor shutters, nor belts.

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XQ240. In the experiments which were made with this model of the Edison machine, you passed the picture films, did you not, across the optical axis just the same as they are passed in the kinetoscope?

Mr. Bowen : Objected to as immaterial and irrelevant.

A. Precisely.

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XQ241. Now what you say you did, and what you have described and shown in your application in addition to what was shown and embodied in the Edison model is to put a stop mechanism to momentarily, as you say in your specification and claims, stop the movement of the film when the picture is at the optical axis; is this not so?

Mr. Bowen : Objected to as immaterial and irrelevant and as an inquiry having no bearing whatever upon the issue of this interference.

*Latham, Interference Deposition.*

2710

A. I have not said anything of the kind.

Mr. Marble: The answer is objected to as irresponsible and the question is repeated.

XQ242. (XQ241 repeated.)

A. I have not described and shown in my application what is no more than a stop mechanism in connection with the so-called Edison model, and there is nothing in my specification and claims to indicate any such thing.

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XQ243. The picture film in the Edison model which you had moved continuously, did it not across the optical axis?

Same objection.

A. It did.

XQ244. And you claim in your application, do you not "means for bringing each picture momentarily to rest as it comes into line with the optical axis of the apparatus?"

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Same objection.

A. I do, but I claim much more. I claim an organization for projecting pictures upon a screen and individual appliances for the purpose.

Cross-examination by Mr. Armat:

Mr. Armat, in his own behalf, by consent of counsel for Latham, desires to make the following objections to the questions and answers: Q10. The question is objected to because it calls for immaterial and irrelevant testimony and because it assumes that

the apparatus Mr. Dickson was working on embodied the invention as set forth in the declaration of interference. The same objection is made to Q21. Objection is made to Q23 that it is leading and calls for immaterial and irrelevant testimony and because it is assuming that the photographing machine described is involved in this interference. Same objection is made to Q25. Q32 is objected to as leading and as assuming that the photographing machine mentioned is involved in this interference. All the objections, except such as I have mentioned that were made by Mr. Marble, counsel for Casler, I desire to make on my own behalf, with the following exceptions; no objection to the answer to Q6; no objection is made to the answer to Q9.

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XQ245. Had you previously done anything in the way of inventing apparatuses or machines for projecting pictures of moving objects upon a screen that justified you in not having the slightest doubt of your ability to devise a machine for this purpose?

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A. I do not understand the bearing of the word previously. Previously to what?

XQ246. What I meant by the word previously in this question was previous to the time of the exhibition by your sons which you state was in the summer of 1894?

A. I had never previously invented apparatus for projecting pictures of movement upon a screen, and had not, therefore, any such basis as such previous invention might have afforded for believing that I could construct such apparatus.

XQ247. Then the solution of the problem of

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projecting pictures of moving objects on a screen appeared to you at that time a very simple one, and it not?

A. I think I have already stated, in my direct examination, that at the very first my impression was that the solution of the problem was easy.

XQ248. What appeared to you at that time to be the problems connected with such projection that were at that time to be solved?

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A. The very first thing that presented itself to my mind as a thing to be done was the providing of a sufficiently strong light which should not have heat enough to burn the easily combustible substance of the film.

XQ249. Was that an unsolved problem at that time?

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A. As at that time, I had never known or heard of the successful projection upon a screen of such strips of pictures as I intended to use and as had previously been used in the Edison kinetoscope I did not know whether it would be easy or difficult to command such a light as I desired. I am speaking now, I would like to have it understood, of projection without any stop of the film at the optical axis at the time of projection.

XQ250. Did you disclose the invention which you claimed to have made, and which is involved in this interference, to Mr. W. K. L. Dickson?

A. I have already stated most distinctly that I did. I repeat the statement here.

XQ251. When?

A. It is utterly impossible at this date to say even in what month the disclosure was made, but prior to the 1st of November, 1894, Mr. Dickson knew generally, at least what my notions upon the subject were.

XQ252. You say that you reserved the photographic apparatus constructed in January, 1895, as a photographing machine. When did you give a public exhibition for pay with this machine?

A. I do not think that I have said that I reserved it for any special use. I think I said that I abandoned, or gave up, at one time the idea of using it as a projecting machine. It was the Lambda Company, I think, that I testified had taken it with a determination to use it exclusively as a photographic machine. It was never employed by the Lambda Company in projecting pictures for pay, and I as an individual have never at any time employed any appliances for exhibitions for pay.

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XQ253. Your sons and yourself owned the majority of stock in the Lambda Company for a considerable period of the year 1895, did you not?

A. We did.

XQ254. The Lambda Company could have used such an apparatus for pay during the year 1895, could it not?

Mr. Bowen: Objected to as immaterial and irrelevant, as this interference is not for the purpose of determining what the Lambda Company may have done, but whether the invention of the issue of the interference was made and by whom first.

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A. Do you mean to ask me if the Lambda Company could, without my consent, have used the apparatus for projecting pictures for pay.

XQ255. That was not the question.

A. Do you mean then to ask me if the Lambda Company could have used the apparatus for photographing pictures for pay?

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XQ256. No. I mean could the Lambda Company have used the apparatus for projecting pictures for pay?

A. That is a legal question which I am unable to answer confidently. It depends upon what construction might be put by the Courts upon the contract between the Lambda Company and myself.

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XQ257. You say that you directed Mr. E. W. Kleinert to order the mutilated gear which you say you employed in the month of February for taking pictures. Why did you not order this gear yourself?

A. For the simple reason that Mr. Kleinert was an expert mechanic and knew better than I did just how to describe the thing that I wanted. It was necessary, of course, inasmuch as the apparatus was otherwise then completed, or nearly so, to have the little wheels of dimensions suitable to be connected with the rest of the machine.

XQ258. Did Mr. Kleinert suggest the use of this gear to you?

A. No, sir.

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XQ259. Was this identical gear employed to photograph the pictures of the Griffo-Barnett fight?

A. It was not.

XQ260. Where did you get the gear that you used to photograph the fight?

A. It was made for me and my sons by Frederick Pierce, whose shop is at 79 John Street, this city. At least that is my recollection.

XQ261. Was the rest of the apparatus for photographing this fight the identical apparatus which you have stated was used to project pictures by your son, Otway Latham in January, 1895?

A. Oh, possibly. Some immaterial alterations

may have been made; I don't remember. My son, Otway Latham who will be a witness in this case had direct supervision of the manufacture and from him, probably more definite information can be obtained than I can give about these matters of detail.

XQ262. You have stated that one reason that you did not use an intermittent motion in a machine for projecting pictures was that the wear on the film was greatly less in an apparatus using a continuously moving film. How did you ascertain this?

A. By having observed from my boyhood that if I allowed my horse to move along without jerking him he would go further.

XQ263. How did you expect to make money out of an apparatus for projecting pictures in the fall of 1894?

Objected to by Mr. Bowen, as irrelevant and immaterial.

A. I have not testified that in the fall of 1894, or at any other time, I expected to make money projecting pictures.

XQ264. The parties who became interested in the Lambda Company expected to give exhibitions for pay, did they not?

Same objection.

A. I really do not know what their individual or collective expectations were at first. As a matter of fact they did begin to give exhibitions for pay about May 20, 1895, but it was never done by my advice, or with my approval or with any expectation on my part that money would be made out of

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such a business. My own notion was always that the proper thing to do was to manufacture the apparatus, sell the machines to anybody that would buy them and leave the purchasers to do what they pleased with them, but the majority seem to have been of a different opinion.

XQ265. You have stated that a gift of stock in the Lambda Company was made to Mr. E. W. Kleinert. Was this gift of stock in payment of his services?

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A. Nothing of the sort. It was intended for no purpose in the world but to give him an interest in the business over and above what he would have had as a mere employee drawing weekly wages, and perhaps more especially than that even, because he had found out that some stock had been given to Mr. Lauste, another mechanic, and because Kleinert showed a degree of jealousy on that account. When Mr. Kleinert was first employed by me he was in Boston; I wrote for him. He came the latter part of December, 1894. Mr. Dickson was greatly excited when he found that I had employed Mr. Kleinert and told me that in consequence of my having done so he should be compelled to remain away from the shop thereafter. Subsequently, however, he became reconciled to what I had done and, as I have already testified, the \$5,000 of stock given to Kleinert were a subtraction from the original \$125,000 given to Br. Brown for Mr. Dickson.

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XQ266. Can you state why Mr. Dickson became excited on account of your having engaged Kleinert?

A. I can for he told me why.

XQ267. Will you explain the reason?

A. While Mr. Dickson had in the beginning assured my sons and had subsequently given me the

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same assurance that the promises he had made were such as he could honorably make, and such as no good man could complain of him for having made, he exhibited a morbid dread of having Mr. Edison learn of what he was doing. He said he could trust Lauste to keep everything secret, but that he had known Kleinert who, I believe, had previously been employed by Mr. Edison, and that Kleinert was not a man to be relied on. At some part of my testimony I think I intimated that there was a time when I began to mistrust Mr. Dickson. Certainly the anxiety he displayed to keep from Mr. Edison what he was doing made me suspect that my sons had made a mistake in entering into any sort of engagement with Mr. Dickson, and made me wish still more than I had done previously that my sons had permitted me to work out the problem for them by myself.

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XQ268. What was the character of the inventions of Mr. Dickson that you have stated you endeavored to get him to disclose to you in October, 1894?

A. I am sure I do not know, because he has not disclosed them to me from that day to this, except in so far as concerns a device for arresting the movement of the film which I have already testified about. He did make or have made, so he says, a printing machine, but, I think, that my son and Mr. Lauste claimed that they had had about as much to do with inventing the device as Mr. Dickson had had. I remember that I was constantly hearing complaints of the printing machine, and that alterations were frequently made in it.

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XQ269. At the time you endeavored to get Mr.

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*Latham, Interference Deposition.*

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Dickson to disclose his invention, was it your intention to approve the contract that you say your sons made with him or intended to make with him under which he was to have one-fourth of the stock of the Lambda Company?

Objected to by Mr. Bowen as immaterial.

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A. I have already stated that I had no authority to approve or disapprove of that contract. It was a contract made with Mr. Dickson by two of my sons on their individual responsibility, and before the Lambda Company came into existence. If it be desired by that question to find out what manner of man I am I will state in this connection that even after the machines had been made and though Mr. Dickson had had almost nothing to do with devising the elements of them, I said to him, "Claim these things as your own inventions, if you please. Get a patent on them in your own name. I don't care for them," and he refused, and said I was the man entitled to receive the patent. His own lawyer, an intimate personal friend, drew up the first application I sent to Washington, namely, Mr. Edmond Congar Brown.

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Adjourned to December 10, 1897, at 11 a. m.

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New York, December 10, 1897.

Met pursuant to adjournment.

Present—Parties as before.

Mr. Latham desires to add to his answer given to Question 259 what seems necessary

to convey a distinct notion of what the facts were. The gear, known as the Geneva stop, soon after it was obtained from Boston was put upon the machine and used, but it very soon broke, because it had been made of machine steel. The broken parts were at once sent to Frederick Pierce, 79 John Street, this city, and he made for me a duplicate of tougher material, except, perhaps, that on one of the wheels two teeth were made, whereas as my recollection serves me, there had been three teeth on the wheel made for me in Boston. The wheel, which I have just mentioned as the one which Mr. Pierce made for me with two teeth, is represented at Fig. 5, sheet 3, of the drawings in the certified copy of the file and contents of my application identified, and is marked 47.

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By consent of all parties the examination of the witness, Latham, is suspended for the examination of Mr. Richard A. Anthony, who is called as a witness on behalf of Latham.

Continuation of the cross-examination of  
Woodville Latham.

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By Mr. Armat:

XQ270. When did you first meet Mr. E. W. Kleinert?

A. I cannot remember whether I had met him before the latter part of December, 1894, or not. I think, however, that I had met him previously and my impression is that it was while he was employed by my sons and their associates in connection with the kinetoscope exhibitions at 83 Nassau street, so often referred to in this investigation.

XQ271. You have stated that you wrote to Mr. Kleinert while he was in Boston; when was that?

2741 A. I do not think I have made such a statement. I think my statement was that I had written for Mr. Kleinert, which might be quite a different thing from writing to him. As a matter of fact, in the latter part of December, 1894, Mr. Kleinert was working for the Kinetoscope Exhibition Company, I believe it was called, under the immediate direction of my son, Gray Latham, in Boston, Massachusetts, and it was to my son that I wrote requesting him to let me employ Mr. Kleinert to assist Mr. Lauste in the shop here in New York City, provided Kleinert was willing to come.

XQ272. Having solved all questions as to means for continuously moving a film and having solved means for taking out and delivering the film and having had numerous devices for intermittently moving the film, was it not well within the power of any skillful mechanic to incorporate an intermittently moving device into the continuously moving device?

2742 A. I confess I do not understand the question. XQ273. I will add to this question, so that the film would be intermittently moved?

A. I am not certain that I yet understand the question. Do you mean to ask me if, in my opinion, a mechanic who had seen an appliance for moving the film across the optical axis uniformly could, without difficulty, devise a machine for moving such film across the optical axis intermittently?

XQ274. Yes, that is what I mean.

A. Then my answer is that my opinion is that one mechanic might be able to construct such a machine and that another mechanic, though equally

skilled in general respects, might not be able to construct such a machine.

XQ275. You state that Mr. Kleinert was instructed by you to order an intermittent gear, because he was a skilled mechanic and could describe that gear better than you could; how did you describe the gear to Mr. Kleinert?

A. I did not describe it at all. I happened to have a catalogue of things manufactured by the Boston Gear Works with representations of some of them, and it was a representation of the Geneva stop in that catalogue that I showed to Mr. Kleinert for the purpose of indicating to him what I wanted. The catalogue did not belong to me but to Mr. Lauste, another mechanic employed by my sons and myself at that time, as I have already stated, and my recollection is that Mr. Lauste first showed me the illustration and asked me if, in my opinion, that would answer the purpose I had in view. 2744

XQ276. At the time you had finished the two photographing machines for taking pictures of the Corbett-Fitzsimmons fight, were there not, to your knowledge, other parties negotiating for the privilege of taking that fight? 2745

Mr. Bowen: Objected to as immaterial and irrelevant.

A. I really do not remember, sir, but I do remember that I ordered the construction of the two machines you refer to in the summer or fall of 1895, because I had been told by persons not now remembered that in all probability the Lambda Company would be requested to photograph the prize fight which was then expected to occur, if my

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recollection now serves me, in February, 1896, but which did not occur.

XQ277. At what rate per second were the pictures of the Griffo fight taken?

A. I do not know, sir.

XQ278. Can you approximate?

A. I cannot.

XQ279. You have stated that you did not believe that pictures could be taken on a continuously-moving film. Had you ever tried it?

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A. My recollection is that my statement was not quite such an unqualified one as you have attributed to me. I have never tried to take a picture on a continuously-running film. All the pictures that I have exhibited, or had anything to do with exhibiting, have been pictures photographed with a machine that moved the film intermittently across the optical axis.

XQ280. You were in the city of New York in the summer of 1896, were you not?

A. I was.

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XQ281. Did your son Gray Latham ever mention to you that he had seen an exhibition of an apparatus commonly known as the Edison Vitascope at Koster & Bial's Theatre in April of 1896?

A. I really do not remember, but I do remember that at some time, whether in April, 1896, or not, I cannot now remember, but long after I had projected pictures of moving objects upon a screen in view of thousands of people in New York City, I myself did see at Koster & Bial's Theatre exhibitions made by the so-called Edison Vitascope.

XQ282. When did you see these exhibitions in Koster & Bial's Theatre?

A. I have already said that I do not remember the time. The thing did not make any very strong

impression on me, and I did not tax my memory with the date.

XQ283. Can you say if it was at any time in the month of April, 1896?

A. If I could make any such statement I should have said so in the beginning without waiting to have you or anybody else drag it out of me.

XQ284. Did your son Gray Latham even mention to you that he had actually seen the construction of this machine?

A. I do not remember. He certainly never explained to me the construction of it and certainly nobody else ever explained to me its construction, and I never, at any time, had the slightest knowledge of its construction till the drawings of the machine were obtained from the Patent Office in Washington in connection with this interference. I might go further and declare as I do that my son Gray Latham has such extremely little knowledge of machinery that if he had studied your machine I verily believe he would have been incapable of describing it to me. In the summer of 1894, when I began to think of such appliances, again and again I asked him to look at and to consider drawings I had made, and he invariably said, "Oh, I can't understand anything of the sort. If you can make the apparatus, make it." I should like to be understood as expressing my opinion of Gray Latham and not necessarily his opinion, of himself.

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XQ285. You have stated that Mr. Edmond Conger Brown drew up the first application sent to Washington. Did this application show means for forming a loop in the film?

Mr. Bowen: Objected to on behalf of Latham, for the reason that the application in-

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*Latham, Interference Deposition.*

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quired about is not involved in this interference, is still pending in the Patent Office and not open to public inspection, and the witness is instructed that he is not obliged to disclose anything whatever concerning such application.

A. I decline to answer the question.

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Mr. Armat desires to say that he is not an attorney and that he has had no training to qualify him to determine the propriety of such a question, except such training as he has acquired by virtue of contact with his own patent cases; but it seems to him that in view of the fact that the witness has voluntarily stated that he did apply for such a patent and in view of the fact that he has previously testified that he had devised such an apparatus, it seems to him that the inquiry is proper and he believes that future developments in this case will demonstrate the fact, and he therefore notifies counsel for Latham that if the witness does not answer this question he will make a motion to strike his entire testimony from the record.

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Counsel for Latham recalls the witness, Woodville Latham, to examine him regarding matter that has been brought to his attention since the direct-examination closed.

WOODVILLE LATHAM, recalled:

Q285½. On your direct-examination you referred to your having made drawings when considering the question as to how your conception of the invention in issue should be embodied, and you sta-

ted that you were unable to produce any such drawings. Now state whether or not you have made further search for such drawings and what you found, if anything?

A. On my cross examination by counsel for Mr. Casler, I stated that I had accidentally found a drawing without date, but bearing internal evidence that led me to the conclusion that it must have been made prior to January 1, 1895, yet now that I have reflected upon the matter more fully, I am inclined to think it possible that the drawing may have been made somewhat later. I have no hesitation in stating that on April the 8th, or thereabout, 1895, an application for a patent from me was filed in Washington, and that said application was filed, according to my recollection, some considerable while after the appliance it related to had been constructed. The appliance included elliptical gear wheels and I find on the sheet now before me. which contains a drawing indicating the leading features of the apparatus involved in the present interference, some statements as to elliptical gears. My inference is that all the writing, as well as the drawing on this sheet, must have been put upon it at a time when I was considering the advisability of using elliptical gears. I have no other means than I have indicated of even approximating the date when this drawing was made.

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Counsel for Latham offers the sheet of paper in evidence, and it is marked, "Latham Exhibit No. 14, Dec. 10, 1897, J. A. S., Com'r."

Mr. Marble: The offering and receipt of the paper referred to is objected to as incompetent and irrelevant, it not appearing by the answer of the witness that said paper

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*Latham, Interference Deposition.*

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has any relation to the subject matter of this interference, or could have had any relation to it by any possibility in view of the testimony of the witness given in the case. Further, it is not shown by the witness's testimony who made the sketch on this piece of paper, nor in whose handwriting the words and figures thereon appearing is.

Same objections by Mr. Armat.

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Q286. State whether or not you have made a careful search among your papers for drawings relating to this invention which you have testified to having made?

Mr. Marble: The question is objected to because the attention of the witness was called on his first direct examination to the subject of this question and such subject was then exhausted and counsel for Latham has no right to recall the witness to testify on the subject about which he was first inquired of.

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A. Presuming that by the expression "this invention" you mean the invention involved in the present interference I state that that question was asked me by counsel for Mr. Casler in my cross examination and that I answered it then as I answer it now that I have repeatedly made such careful search.

Q287. In whose handwriting is the matter on Latham Exhibit No. 14?

A. In my own handwriting, all of it, words, figures and drawings except the endorsement made by the Commissioner.

Q288. I now call your attention to a machine and its stand, which has been introduced and marked Latham Exhibit No. 12, and ask you to look at said exhibit and state what it is, if you know and when you first saw it?

Mr. Marble: The question is objected to because it calls for incompetent and immaterial testimony.

Same objection by Mr. Armat.

A. I have looked at it carefully and I recognize it as the machine originally constructed under my general direction for photographing and projecting pictures of movement, and as the machine after the pattern of which substantially was subsequently constructed the machine from which the drawings were made that accompanied my application filed in the Patent Office at Washington City on June the 1st, 1896. 2762

Q289. When was the machine Exhibit No. 12 finished as it now stands and where?

Mr. Marble: Same objection.

A. As I think I have already stated, when referring to this machine before it was recovered from the parties into whose hands it had fallen after it left my possession, to the best of my recollection and belief it was finished sometime in the month of January, 1895, substantially and it now appears. It was finished in the shop of myself and sons in the Scott Building at 35 Frankfort Street, New York City. 2763

XQ290. You have referred often in your testimony to the "first machine." Please state what relation the machine Exhibit No. 12 bears to the "first machine."

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*Latham, Interference Deposition.*

Same objection by Mr. Marble.

Same objection by Mr. Armat.

A. Whenever in my testimony I have used the expression "first machine" my reference was to the machine now marked Latham Exhibit No. 12.

Q291. Who were the mechanics that did the work in building the machine Latham Exhibit No. 12, and also state under whose supervision the work was done?

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Same objection by Mr. Marble.

Same objection by Mr. Armat.

A. It was built mainly by Eugene Lauste, but my recollection is that E. W. Kleinert assisted him toward the last. The work was done under the direct supervision of my son, Otway Latham.

Q292. Do you know the present whereabouts of the mechanic, Eugene Lauste?

Mr. Marble: Same objection

Mr. Armat: Same objection.

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A. I do not.

Q293. Do you know the present whereabouts of the mechanic E. W. Kleinert?

Mr. Marble: Same objection.

Mr. Armat: Same objections.

A. My information is that he is in Waterbury, Connecticut.

Cross-examination by Mr. Marble (without waiving his objections):

XQ294. It already appears in the record that you filed an application for a patent on December

28, 1895. Now it appears that you filed one on April 8, 1895. How many applications for patents did you file before June 1, 1896?

A. I cannot remember.

XQ295. Did you file more than had been referred to in the testimony here?

A. That is just the thing that I am unable to remember.

XQ296. Do you mean to be understood that the sketch and paper and writing and figures which was offered in evidence and marked Latham Exhibit 14, is one of the sketches you made in reference to the invention here in controversy?

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A. I mean to be understood as making an inference as to the time when that drawing was made from the circumstance that upon the paper, and obviously written near about the time when the drawing was made, is mention of an elliptical gear wheel, nothing more.

XQ297. It is very difficult to determine facts from inferences. Do you or do you not mean to be understood in your testimony that this paper marked Latham Exhibit No. 14 was made by you and the sketch put thereon, the writing and other figures put thereon, during the time that you were considering the invention here in controversy?

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A. I mean to be understood no otherwise and to no other extent than I have indicated.

XQ298. You have indicated nothing. What I want you to do is to say something. I want to know how you mean to be understood, and I want to know whether you mean to be understood that this Exhibit No. 14, the sketch, the writing and figures thereon were made by you while you were considering the invention here in controversy?

A. I wish to be understood as having presented

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a paper containing a drawing and other things that may have been put upon the paper prior to the completion of the apparatus involved in this investigation and which yet may have been put upon the paper subsequently to the completion of that apparatus. I wish to be understood as declaring and as having repeatedly declared that it is impossible for me to state with any degree of certainty when the drawing was made, but I wish to be understood as saying and as having said that there is mention on the paper of an elliptical gear wheel. I wish further to be understood as saying now that I do not believe that since the construction of the apparatus involved in this interference I have ever concerned myself in such a way about an elliptical gear wheel as to make it probable that I would write upon a sheet the things I now find written upon the sheet containing the drawing and which I do believe were put upon the paper on or about the time the drawing was put there. It is utterly impossible for me to be more specific in this connection; I could not honestly be so. It is for the Department in Washington to determine whether or not the drawing is a thing of any weight one way or the other in this investigation.

XQ299. You are the only person on earth or whoever was on earth who can tell the Department at Washington facts upon which it can determine whether this paper is worth anything or not, and have any place in this case. The paper does not speak for itself: Now what makes you think this sketch and these figures were made after January 1, 1895, as stated in your answer to Q285?

A. I stated in that answer that it may have been made somewhat subsequently to January 1, 1895, and I have also stated that it may possibly have

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been made at a date even so late as one subsequent to the date of the completion of the apparatus involved in this interference. It is simply because I am not certain about the date myself that I have mentioned the writing touching an elliptical gear wheel together with a mention of my best recollection as to the time since when it is not probable, in my own estimation, that there has been an inducement to me to make such notes touching the elliptical gear wheel, as a circumstance that might possibly be taken as an indication when the drawing was made.

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XQ300. What are the words, figures or ear marks on this paper marked Latham Exhibit No. 14 which lead you to think that the sketch thereon, words and figures thereon, were made after January 1, 1895, and possibly after the machine marked Latham Exhibit No. 12, or some other machine was made and completed?

A. There are on the paper no words, figures, ear marks or other indications to lead me to such a belief. I only stated that as I could not remember when the drawing and writing were put upon the paper, they might possibly have been put there after January 1, 1895. The "words, figures and ear marks" all lead me to the conclusion that the drawing was made prior to January 1, 1895, but not so strongly to that belief as to justify me in declaring it to be my belief positively.

2775

XQ301. Where do you find on this paper anything which leads you to say in your answer to Q299, "It is simply because I am not certain about the date myself that I have mentioned the writing touching an elliptical gear wheel"?

A. I find it in a statement in words and figures of what would be the action of a driving ellipse,

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by which words "driving ellipse," I meant an elliptical gear wheel and I do not believe that I can recall any circumstance going to show that I felt any interest in such statements as to the action of a driving ellipse, subsequently to the completion of the apparatus involved in this interference that is, not the kind of interest that would have induced me to put upon paper such a statement as appears upon this paper, the Latham Exhibit No. 14.

2777

XQ302. What was the nature of your alleged invention in your application filed April 8 or thereabout, 1895, that it should employ elliptical gear wheels as you stated in answer to Q285?

A. So far as I know that application is still pending, and as others than myself have an interest in it, and as the department—that is the Patent Office Department in Washington City—is in possession of the papers and can at any time refer to them for light in the decision of this interference, I do not think that I ought to be required to describe the apparatus.

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XQ303. I haven't asked you to describe the apparatus. You have brought a paper here which has been marked Latham Exhibit No. 14. You have testified that on or about April 8, 1895, you filed an application which included elliptical gear wheels. Now, I want to know what the nature of that invention was. You needn't describe any feature of it, but you brought this paper here marked Latham Exhibit 14 and you say that it has on it what you understand to be elliptical gear wheels. Now I ask you again to state what was the nature of the invention described, illustrated and claimed in your application filed on or about April 8, 1895?

A. For the reasons I have already given I must decline to disclose the nature of that apparatus.

Mr. Marble: The attention of the Commissioner of Patents is called by counsel for Casler to the recalcitrancy of this witness, and his unwillingness to answer fair questions after he has disclosed fully the subject upon which the question is predicated and that too, of his own accord.

2780

Adjourned to December 11, 1897, at 11 A. M.

New York, December 11, 1897.

Met pursuant to adjournment.

Present—Parties as before.

Continuation of the Cross-examination of Woodville Latham by Mr. Marble:

XQ304. Can you now state positively to what Latham's Exhibit No. 14 relates?

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A. I can make no addition to statements already made except to declare that the drawing on the said exhibit was intended to represent either my conception of some of the principal features of the apparatus for which application was filed June 1, 1896, or else a representation of some of the features of that apparatus after it had been constructed. I would be able to say distinctly whether it was one or the other if I could fix positively in my own mind the time when the drawing was made.

2782

XQ305. Did this Exhibit 14 form a part of a communication from you to somebody else?

A. Whether or not the drawing of Exhibit 14 was ever shown by me to anybody else, I am unable to say, but I do say that, prior to the construction of the apparatus involved in this interference the general construction indicated by the drawing aforesaid was frequently spoken of by me to my sons and to Mr. Dickson, as I have already stated heretofore substantially.

2783

XQ306. Can you tell what the words and figures were put on said exhibit for?

A. I cannot, sir. If what is on the exhibit, put there by me, was put there prior to the beginning of the construction of the apparatus, it is likely that this was done with the view of enabling me to communicate my ideas to others. If it was made after the construction of the machine, I am unable to guess why it was made.

XQ307. Did this paper marked Latham Exhibit 14 once form a part of a larger sheet of paper?

A. Not so far as I know, or have any reason to believe.

2784

XQ308. In direct question three your attention was called to the issue of this interference and you were asked if you ever devised the invention defined in said issue and you answered "An invention of that description was devised by me and I first conceived of the invention in a general way in July or August, 1894." What do you mean by the words "in a general way" in that answer?

A. I mean that at that time I had not made up my mind positively as to just what means I should employ in accomplishing the objects which I had satisfied myself must be accomplished in order to make such apparatus effective and that I had not

made up my mind as to just how the different parts of the appliance should be connected together, so as to make them co-operative.

XQ309. When did you then conceive of the means which you would employ and make up your mind how the different parts of the appliance should be connected together so as to make them co-operative?

A. I will answer the last part of your question first. Questions touching the connection of the several leading parts of the apparatus together so that they would work in co-operation were left almost exclusively to the mechanic. I think I have already stated that the chief difficulty, if not the only one, that presented itself to me touching the machinery as distinguished from appliances for securing light was the difficulty of determining which one of a large number of appliances for producing intermittent movement might best be adopted. I think I have also testified as to the circumstances under which for something like two months, namely, the months of November and desired, and how, therefore, it was not until after by my sons to construct such apparatus as they 2786  
December, 1894, Mr. Dickson had been employed they had reason to believe that Mr. Dickson would not succeed that I got their permission to employ the broken gear which appears substantially in Exhibit No. 12. I have already testified that that broken gear, or one similar to it, was purchased by me of the Boston Gear Works early in January, 1895, and I have also testified, or have certainly meant to do so, that not until about the time of the purchase of that gear had I resolved upon any special appliance for producing the intermittent movement. From the very beginning—that is, from 2787

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*Latham, Interference Deposition.*

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July or August, 1894—it was my purpose to use two sprocket wheels geared together so as to revolve at the same rate, one of them on one side of the optical axis and one of them on the other. I had also determined to employ between one of these sprocket wheels and the optical axis an appliance for moving the film intermittently across the optical axis. Of course I knew it would be necessary to keep the film flat—that is, not wrinkled—at the optical axis, and I had made up my mind at the beginning as to the appliance that I should employ for that purpose. In my estimation these were the essential features of the apparatus.

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Mr. Marble: The answer is objected to as irresponsible.

2790

XQ310. In your answer to direct question 288, which called your attention to Latham Exhibit No. 12 and in which you were asked to state what it is and if you knew when you first saw it, you answered in part as follows: "I have looked at it carefully, and I recognize it as the machine originally constructed under my general direction." What do you mean by use of the words "general direction"?

A. That is an expression, it seems to me, the meaning of which is perfectly obvious, and I do not know how I could express myself generally in any better way. If the question is made more definite I will endeavor to answer it.

Mr. Marble: The answer is objected to as irresponsible and the question is repeated.

XQ311. (XQ310 repeated.)

A. I make the same answer.

XQ312. Do you decline to answer the question further?

A. The answer to that question is found in what I have already said.

Mr. Marble: The attention of the Commissioner of Patents is again called to the recalcitrancy of this witness in refusing to state what he means by a phrase used in his own answer.

XQ313. What general directions, if any, did you give to the person or persons who constructed Latham Exhibit No. 12? 2792

A. At this distance it is utterly impossible for me to recall them.

XQ314. Do you mean to be understood that you cannot remember any of the instructions or directions which you gave for the building of this apparatus marked Latham Exhibit No. 12?

A. I mean to say that it is utterly impossible for me to recall at this date any special general direction given by me touching the construction of the apparatus, for the reason that the construction occurred nearly three years ago. 2793

XQ315. I think you have already stated, but I would like to have you state in this connection again who the persons were that attended to the actual construction of Latham Exhibit No. 12?

A. I have already stated that the mechanical work was done by Eugene Lauste, assisted, possibly, by E. W. Kleinert toward the last, and that Otway Latham superintended and directed this work.

XQ316. In your answer to XQ309, in which you were asked: "When did you then conceive of the means which you would employ, and make up

your mind how the different parts of the appliance should be connected together so as to make them co-operative," you stated among other things "Questions touching the connections of the several leading parts of the apparatus together, so that they would work in co-operation, were left almost exclusively to the mechanic." To what mechanic do you refer in this answer?

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A. When I made that answer I had in mind the first mechanic we employed, namely, Eugene Lauste. After, however, I had employed Mr. Kleinert, some such things were left to his determination, and I was considerably annoyed by complaints from each of these mechanics about the inefficiency of the other.

XQ317. Well, when they had got the apparatus constructed and arranged according to their notions, did you approve of the construction and arrangement?

A. I have not declared in any part of my testimony that the apparatus ever was "constructed and arranged" according to their notion.

2796

XQ318. Did you approve of the construction and arrangement of the apparatus marked Latham Exhibit No. 12 after you had had placed in it what is termed the Geneva stop?

A. I approved of it as a whole—that is as a thing that would accomplish its purpose, but there were details of construction, just the very things that I have declared to have been left to the judgment of the mechanics, that I did not approve of, and I said to Mr. Lauste that I thought some of the means he had employed for connecting together the different shafts were clumsy and unworkman-like.

Cross-examination waived by Mr. Armat.

Mr. Armat: I desire to make the same objection to the witness's answers in my own behalf that Mr. Marble has made.

Mr. Marble: In view of the testimony given by this witness this morning I object to such testimony as contradictory to the statements contained in his preliminary statement in this case, to wit: to clauses marked (a), (b) and (d).

Recess till 2 p. m.

2798

After recess.

WOODVILLE LATHAM.

Signed before me

JOHN A. SHIELDS,  
U. S. Commissioner,  
S. D. of N. Y.

Adjourned to December 13, 1897, at 11 a. m.

2799

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NOTICE OF TAKING TESTIMONY IN  
REBUTTAL.  
IN THE UNITED STATES PATENT OFFICE.

WOODVILLE LATHAM

vs.

HERMAN CASLER

vs.

THOMAS ARMAT.

Apparatus for  
Projecting on a  
Screen Pictures of  
Moving Objects.

Interference No.  
18,461.

2801

Mr. Julian C. Dowell,  
Attorney for Thomas Armat,  
Loan & Trust Building,  
Washington, D. C.

Sir.—Please take notice that I shall proceed to take testimony in rebuttal in the above entitled interference on behalf of Woodville Latham, at the Vanderbilt Building, Room No. 1111, No. 132 Nassau Street, City of New York, N. Y., before Miss C. E. Davidson, Notary Public, or other proper officer, beginning Saturday, March 11th, 1899, at 10:30 o'clock a. m.

2802

The names of the witnesses to be examined and their addresses or residences are as follows: Woodville Latham, Grey Latham and Otway Latham, all of the City of New York, N. Y., and E. E. Kleinert, of Waterbury, Ct.

The examination will be continued from day to day, without further notice.

You are invited to attend and cross-examine.

J. E. M. BOWEN,  
Attorney for Woodville Latham.

Dated March 9th, 1899.

Service accepted this 10th day of March, 1899.

JULIAN C. DOWELL,  
Attorney for Armat.

NOTICE OF TAKING TESTIMONY IN RE- 2803  
 BUTTAL.  
 IN THE UNITED STATES PATENT OFFICE.

WOODVILLE LATHAM

vs.

HERMAN CASLER

vs.

THOMAS ARMAT.

Apparatus for  
 Projecting on a  
 Screen Pictures of  
 Moving Objects.  
 Interference No.  
 18,461.

2804

Messrs. E. M. Marble & Sons,  
 Attorneys for Herman Casler,  
 St. Paul Building,  
 New York, N. Y.

Sirs.—Please take notice that I shall proceed to take testimony in rebuttal in the above entitled interference on behalf of Woodville Latham, at the Vanderbilt Building, Room No. 1111, No. 132 Nassau Street, City of New York, N. Y., before Miss C. E. Davidson, Notary Public, or other proper officer, beginning Saturday, March 11th, 1899, at 10:30 o'clock a. m.

2805

The names of the witnesses to be examined and their addresses or residences are as follows: Woodville Latham, Grey Latham and Otway Latham, all of the City of New York, N. Y., and E. E. Klei-ert, of Waterbury, Ct.

The examination will be continued from day to day, without further notice.

You are invited to attend and cross-examine.

J. E. M. BOWEN,  
 Attorney for Woodville Latham.

Dated March 9th, 1899.

Service accepted this 10th day of March, 1899.

E. M. MARELE & SONS,  
 Attorneys for Herman Casler.

2806 IN THE UNITED STATES PATENT OFFICE.

In the Matter

of

The interference between the applications of WOODVILLE LATHAM, filed June 1st, 1896, HERMAN CASLER, filed February 26th, 1896, and THOMAS ARMAT, filed February 19th, 1896.

Before the  
Commissioner  
of Patents.

Interference  
No. 18,461.

2807

Subject: Apparatus for Projecting on a Screen, Pictures of Moving Objects.

2808

Depositions of witnesses examined on behalf of Woodville Latham, in rebuttal, pursuant to the annexed notices, before C. E. Davidson, Notary Public, at the Vanderbilt Building (Room No. 1111), 132 Nassau Street, in the City of New York, N. Y., on Saturday, the 11th day of March, 1899.

Present—Mr. J. E. M. BOWEN, on behalf of Woodville Latham.

Mr. E. M. MARBLE, on behalf of Herman Casler.

Mr. Bowen: As Mr. Dowell, the attorney for Armat, is unable to be present this morning and cannot attend until Monday, I wish to reserve on the record his right of objection and cross-examination when he attends on Monday.

WOODVILLE LATHAM, being first duly sworn, doth depose and say in answer to interrogatories propounded to him by J. E. M. Bowen, his counsel, as follows:

Q1. You are a party to this interference and have heretofore testified in the case, have you not?

A. I am, and have.

Q2. You heard the testimony of Eugene Lauste who was examined in this case on behalf of Casler and have since read said testimony?

A. I heard portions of his testimony as he gave it, paying no particular attention to it, and had no clear notion of what it was until yesterday when I read a copy of it carefully. 2810

Q3. As Lauste's testimony referred particularly to you in his relations with you, you will please state whether from your knowledge of the facts, he testified to the truth, when he states that the invention, the subject of this interference, was devised by him and was not explained to him by you when you employed him as a workman?

Mr. Marble: Question is objected to as leading and indefinite. 2811

A. His testimony touching these matters is most absurdly false, and was known by him to be false when he gave it. There is internal evidence to show conclusively that he came upon the witness stand for a purpose that had been explained to him and he was so over-zealous to carry out that purpose that he lied when there was no possibility that his lies could benefit his employers.

Mr. Marble: Answer objected to as irresponsible and vague.

2812

*Latham, Interference Deposition.*

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Q4. You have heretofore testified in this case that Lauste never showed you any sketches embodying the features of the invention of this interference before the machine (Latham's Exhibit No. 12) was completed. Since Lauste has testified to the contrary, please state your present recollection on the subject?

A. My present recollection and my confident belief are that he not only never showed me such sketches, but that he never made them.

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Q5. If you have not heretofore answered the question, please now say, briefly, for what purpose you employed Lauste in 1894?

A. Solely for the purpose of doing as a mechanic the things he might be directed to do. He was recommended to my sons and myself by Mr. W. K. L. Dickson, not as an optician, not as a physiologist, but simply and solely as a mechanic whom he had known for a considerable time, and whom he believed to be capable of doing any nice mechanical work that we might require at his hands.

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Q6. When Lauste entered your employ did you explain to him fully what you wished to have him do, and also explain to him the invention that he was to embody in a machine?

Mr. Marble: Question objected to as leading and not rebutting testimony, as it already appears in the witness' direct testimony how Mr. Lauste came to be employed by the witness and his sons and how he was set to work.

A. I did not. I informed him that he would receive his directions from my son Otway Latham.

It was impossible at that time for me or Mr. Dickson, or either of my sons, to explain to him the invention that he was to embody in the machine, for the reason that no one of us at that time had anything but the most general notion of what such a machine ought to embody.

Q7. That was in September, 1894, so Lauste testifies, is that so?

Mr. Marble: Question is objected to as leading and incorrectly stating the testimony of Mr. Lauste.

A. That is my recollection. If it be deemed necessary I can by referring to memoranda, give the day on which I first began to pay for his services.

Q8. Lauste has testified that Otway Latham had no control over him and simply stood around and watched him, what have you to say as to that?

A. That his statement was intentionally false; that at the time when I employed him I said to him that he was to be in all things under Otway Latham's orders, and as a matter of fact from the beginning to the end of his employment by me and my sons he obeyed my son. Otway Latham, in the minutest particulars, so far as the construction of the machine is concerned. From the beginning to the end of his employment by myself and sons there was absolutely nothing left to his determination except mere mechanical details.

Q9. Do you know whether Lauste could make working drawings and did you ever ask him to make any such drawings of any machine? I use the word "working" in the sense in which it is employed by mechanics and machinists.

A. I never asked him to make working drawings and never knew or heard of his doing so. It is the practice of some machinists to make such drawings and to conform their work to the drawings. Mr. Lauste's practice was to make no drawings as a guide to his work and the only drawings of the machines which I have known of his making or have ever heard of his making were drawings made after the machines were completed. It is true that on some occasions when he was endeavoring to explain to me how he would carry out my wishes and when he had found that I could not understand his verbal explanation he would assist his speech by the use of his pencil.

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Q10. In Lauste's answer to question 18, he states "now Mr. Latham told me he would not come many times to the shop, but would leave me alone to work at the machine," what have you to say as to that?

A. That my telling him that I would not often come to the shop was in connection with my statement to him that he would receive his instructions from Otway Latham.

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Q11. In the same answer Lauste states "Mr. Latham gave me \$20,000 shares for the idea of the machine." What have you to say as to that?

A. That it is unqualifiedly false. That in the beginning he agreed to work for us for eighteen dollars a week; that he seemed so anxious to carry out our wishes, and seemed such a faithful worker, that I voluntarily, or rather at the suggestion of one of my sons, Gray Latham, increased his pay to twenty-one dollars. After the machine had been completed, and my sons and I, and others who were interested with us, concluded to form a stock company for exploiting it, again at the suggestion

of Gray Latham, I consented that of the stock belonging to himself, his brother and myself, 200 shares of \$100 each, par value, should be given to Lauste. When I gave it to him I made no impression upon his mind other than that it was a free gift from my two sons and myself. From a better knowledge of Mr. Lauste's character than we had had in the beginning we had come to fear that he might yield to any temptation that might be offered him and play us false by imparting to somebody else a knowledge of what we had done, and our notion was that we could bind him to us securely by making him a stockholder in the company.

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Q12. Did Lauste ever have any ideas about picture projecting machines that he ever imparted to you?

Mr. Marble: Question objected to as leading.

A. Never. I remember that after we had completed one or more machines and were trying the effect of placing the shutter in one position and another, he said to me that the shutter ought to be made to "cut the picture, not the light," meaning that the shutter ought to be placed between the picture strip and the screen rather than between the picture strip and the lamp. We had tried both positions separately and together, and his remark probably was due to what he had observed in the experimentation we had made. The only thing that enables me to remember his remark is the peculiar form of it. In all my intercourse with him I never discovered that he had any knowledge whatever of the principles governing the projection of pictures. He claimed to be an elec-

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*Latham, Interference Deposition.*

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trician especially, and I never heard him make a claim to any knowledge of optics.

Q13. In answer to Question 20 Lauste says, referring to yourself, "I never got a sketch from him. I made the first one." What have you to say as to this?

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A. That he certainly got from me as many sketches prior to the completion of the machine as I ever got from him, and probably many more, because just as it was difficult for him to make me understand his language without a rough sort of sketch to supplement it, so it was impossible for me at times to convey my thoughts to him without similar rough sketches.

Q14. During the taking of Lauste's testimony he made at the request of counsel for Casler a series of sketches which are numbered 1 to 4. Of the first sketch, No. 1, he said he made the original sketch, not produced, in October, 1894, and showed it to you at that time, what is your recollection as to that?

A. That his statement is untrue.

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Q15. In answer to Question 34, Lauste says: "Yes, and he said, I trust you, you go ahead," in reply to the inquiry of counsel for Casler as to whether he, Lauste, told you and Otway Latham what the different parts of the sketch alleged to have been made in October, 1894, represented and how it would operate, what have you to say as to this?

A. That his statement has not one syllable of truth to justify it, so far as it relates to me.

Q16. Lauste testifies that in December, 1894, he made a second sketch and that he showed the sketch to you; what is your recollection as to that?

A. That his statement is untrue, if by sketch his meaning was a drawing of any machine prior to the construction of that machine. I do not now remember clearly whether in December, 1894, we had finished the construction of any operative machine, but I reiterate the statement heretofore made in this examination, that so far as I know and believe Lauste never did, prior to the completion of a machine, make anything in the way of a sketch, except rough sketches to assist his verbal utterances, such as I have already described.

Q17. In answer to Question 62, Lauste prepared a sketch, at his examination, which was introduced in evidence and marked "Casler's Exhibit, Lauste Sketch No. 2"; the sketch thus made is alleged to be like the second sketch claimed to have been made by Lauste in December, 1894. In answer to Question 51, he states that he does not know where the original second sketch is, but that after the machine was completed he made a new sketch and had a blue print made, and that Mr. Latham, meaning yourself, took the sketch away. Lauste further states, in answer to Question 54, that you took the third sketch from the bench, and when he asked you where it was he said you told him you took it home. You will observe that this third sketch is claimed to have been made after the machine was completed, and it is also claimed that a blue print was made of the sketch. Now I have gone into this matter with some detail in order to ask you whether it is your present recollection that any drawings were ever made by Lauste of a projecting machine that he had helped to construct for you, or whether any drawings were made of the machine which has been introduced in this case as "Latham's Exhibit No. 12," and if so,

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Latham, Interference Deposition.

state about when such drawings were made and the circumstances relating to the subject?

Mr. Marble: Question objected to as misleading and multifarious.

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A. I do not recall any but three sets of drawings, and am unable to understand just what drawings are referred to by Lauste as Nos. 1, 2 and 3, because, as I understand his testimony, he declared that he had made four sets. A projecting machine, with elliptical gears, was made, and also one exactly like it, except that the gears were round. Which of them was first tried, and of which, after its construction, drawings were first made, I do not clearly remember. Both these first two sets of drawings were made for patent application purposes and one of the sets, if not both of them, were by me put into the hands of Mr. Edmond Congar Brown, attorney at law, with office in the Vanderbilt Building, New York City. Mr. Brown was at that time my patent attorney and he afterwards had made by a draftsman, whom I have never seen, and whose name I do not recall, such drawings based upon these as met the requirements of the Patent Office. Mr. Brown has never returned to me the drawings I put into his hands. Both those sets of drawings were made by my order after the construction of the machines they represented. The third set of drawings to which I have referred as within my knowledge, were of the machine marked "Latham's Exhibit No. 12." Those drawings were made by Lauste under my direction a long while after the machine they represented had been constructed and used. To the best of my recollection it was more than a year after the con-

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struction of the machine that the drawings were made. They were not made for patent application purposes but solely because I was afraid that the building in which the machine was kept for the most part might be destroyed by fire. When Lauste had completed these drawings he brought them to me in the shop and after I had looked at them casually either he or I laid them upon one of the tables. That afternoon when I returned to my quarters I took them with me. The next day Lauste asked me about them. I told him that I had taken them home and he said, that, as I had observed, one of the copies was a blue print and that he had made it in the hope that I would give it to him as a souvenir. I told him that I would give it to him with pleasure, but I forgot to do so, and the original drawing, the tracings and the blue print are now in my possession. After Lauste had testified as to these and other drawings the request was made by attorneys for Casler that I would produce them. I stated to my attorney that I then believed that no such drawings were in my possession. Several circumstances caused me to make the mistake, one was that the purposes for which the drawings had been made were no longer and had not been for a considerable while matters of any interest to me, another was that my understanding at the time when Lauste gave his testimony was that he referred to working drawings or sketches made by him prior to the construction of the machine to which they referred. My thought was that the attorneys on the one side and the other were simply trying to trace my conduct and that of Lauste up to the construction of the machines, and it seemed to me that no drawing made of machines after their construction could have any

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sort of bearing on the question by whom those machines were devised and made. A third circumstance was that my dwelling room was a small one, that it was utterly impossible for me to keep my papers and books and clothing in any orderly way; that I repeatedly moved from one such small room to another and that when I was searching for such sketches as I supposed I had been called on for, I failed to find the drawings which I subsequently learned were the ones I was expected to produce. Later, by accident, I fell upon them and immediately put them into the hands of my attorney.

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Mr. Marble: Answer objected to as irresponsible and largely volunteered.

Recess until 2:30.

2:30 P. M.

Q18. At whose request did you renew your search for sketches or drawings, such as Lauste claimed that he made?

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A. My recollection is that it was at the suggestion of my attorney.

Q19. And did he not urge you to continue the search?

A. Yes, I think he did. I remember that he said to me that a consulting attorney in this case had said to him that it was a great misfortune to me that I had not been able to recover those drawings.

Q20. Lauste made at his examination a fourth sketch which he claimed was similar to a sketch that he made before he commenced the construction of the machine "Latham Exhibit No. 12." and that sketch was introduced as "Casler's Exhibit Lauste Sketch No. 4." The original sketch,

which Lauste claims he made, is referred to in answer to Question 70, where he states: "I made the drawing in two hours, and I started the pattern immediately, the same day. In answer to Question 123 Lauste states that he showed this sketch to you, and in answer to Question 122 he states that he made it in November or the first of December, 1894. What is your recollection as to all of this?

A. That there is not one syllable of truth in it, so far as I know and believe.

Q21. Was any sketch or drawing, showing a complete machine embodying the elements of Latham's Exhibit No. 12, exhibited to you by anybody before the completion of that machine in the winter of 1894 and 1895?

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A. No, sir.

Q22. Was there a drawing or sketch made of that machine, and from that machine, after its completion, by any one upon your instructions, and if so, by whom?

Mr. Marble: Objected to as leading.

A. I have already stated that such a drawing was made by Lauste under my order a considerable while after the completion of the machine; that drawing I now have in my hands. It is the only drawing of the machine that was ever made by anybody, so far as I am aware. The drawing itself, together with testimony given by me, with proofs touching the time of the adoption of the Geneva stop or Maltese cross, as Lauste calls it, shows conclusively that the drawing could not have been made as early as December, 1894. The elaborateness of the drawing is clear indication that it could not have been made in two hours by a sick man sitting upon his couch.

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*Latham, Interference Deposition.*

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Q23. How many sheets of paper is the drawing to which you refer, made upon?

A. Upon two sheets of brown paper, upon one of which is stuck a small piece containing the representation of a motor.

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Mr. Bowen: The drawing referred to in the last answer is introduced in evidence and is marked "Latham Exhibit, First Drawing of Complete Machine." C. E. D., Notary Public, March 11th, 1899.

Mr. Marble: The offering and receipt of the drawing just mentioned and marked "Latham's Exhibit, First Drawing of Complete Machine," are objected to as not rebutting testimony and incompetent.

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Q24. Who made the drawings just introduced in evidence.

A. The order for them was given by me to Lauste, and from Lauste I received them when they were finished. I have, however, a vague impression that he was assisted in making them by another workman whom I was then employing.

Mr. Marble: Answer objected to as irresponsible and vague.

Q25. Can you now state about when the said drawings were made by Lauste?

A. From the fall of 1894, till the fall of 1895, our shop was in Frankfort Street. In the fall of '95, we moved to more commodious quarters at 101 Beekman Street, previously to going to Beekman Street, we had no facilities and Lauste had none, so far as I know and believe, for making drawings and tracings such as I have just referred to. Imme-

diately after going to Beckman street, I purchased a fine drawing table and other appliances for the use of the draftsman, and my belief is, that these drawings and tracings were made some considerable while after our removal into the Beckman street shop. Lauste never lived in the Beckman street building; he did live in one of the rooms of the shop in Frankfort street, and it was in this latter place that he had a spell of sickness of short duration, and it was in this latter place that such parts of the machine, "Latham's Exhibit No. 12," as were not made by outside parties, Frederick Pierce and others, were made, and it was here also that the parts of the machine were assembled and that the machine was first used.

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Q26. You have stated that the drawings, "Latham Exhibit First Drawing of Complete Machine" were made from the machine "Latham's Exhibit No. 12," how do you know that to be so?

A. Because, as I have already stated, I directed Lauste to make for me such drawings after the machine had been completed; because these are the drawings that he gave to me in obedience to that order, and because on comparing the drawings with the machine as it then appeared before me, I saw that they were a correct representation of it, certainly in the main. My recollection is, that there never was a motor fastened to the top of the machine, and that his representing it as being there was intended only as a suggestion that that would be a convenient place to put it. As a matter of fact, so far as I remember, the motors with which we ran our machines were always fixed to the floor. The machine was so small that a motor of sufficient size to drive it could scarcely have found lodgment on it. My recollection is, that the motors we com-

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monly employed were about the size of the machine itself, perhaps larger, and the proportion represented by Lauste's drawing—

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At this moment I discover that what at a hasty glance I took for the representation of a motor is not one. I have requested counsel for Casler to allow me to expunge the portion of my answer relating to the motor and the privilege has been denied me. The discovery of my mistake was made by myself, and I scarcely think that attorney for Casler would have observed it, if he had been looking at the drawings himself.

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Counsel for Casler says that he thinks the witness has made a great many mistakes in his testimony to-day. They are of that character as are not so readily demonstrable as this one, and therefore he objected to the witness striking out the statement he has made which militated quite thoroughly against his knowledge of this drawing, Latham's Exhibit First Drawing of Complete Machine, and when and under what circumstances it was made.

Q27. Now state whether you had the drawings referred to in the last answer in your hands or were looking at them when giving your answer, and also state what the device is at the top of the machine which you spoke of as a motor?

A. I neither was looking at the drawings nor did I have them in my hands at the time. Prior to a few moments ago, I had not seen these drawings for months; certainly had not looked at them. I find on observing them more carefully that the device I referred to as a motor is a kind of indicator of the

speed of the driving shaft of the machine, and governor thereof.

Q28. Previous to the time that these drawings "Latham Exhibit, First Drawing of Complete Machine" were made by Lauste upon your orders, had anyone ever shown you or brought to your attention a drawing or sketch showing similar mechanism?

A. Never.

Q29. You have stated, that tracings were made from these drawings by Lauste and blue prints from the tracings, have you such tracings and blue prints present, if so, please produce them, and explain briefly the circumstances under which they were made, and by whose instructions and consent?

Mr. Marble: Question is objected to because it does not call for rebutting testimony and therefore incompetent.

Mr. Bowen: These Exhibit drawings and the tracings and blue prints are produced in response to the demand of Counsel for Casler, if they could be found. They are not now produced for the purpose of establishing a date of invention but simply to place before the Patent Office the facts connected with their preparation. According to the testimony in the case, the machine, which these drawings and tracings and blue prints represent was constructed long before it is claimed these present exhibits were made.

Counsel for Casler thanks Counsel for Latham for the little speech he has just made because it sustains the objections he has made, but if the only object of producing these drawings is to satisfy the request or

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*Latham, Interference Deposition.*

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demand that was made for them when Mr. Lauste was here and could have referred to them in his testimony, notice should have been given that these drawings would be produced for that purpose and an opportunity offered to have Mr. Lauste here so that he might give his testimony in relation to these particular drawings. It is very evident that the advice of consulting counsel has had great influence upon the Counsel of Record for Latham, and upon that of Latham himself.

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The attention of the Commissioner of Patents is particularly called to the statement of Counsel for Latham, in relation to the production of these drawings at this time.

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Mr. Bowen: The statement just made by Counsel for Casler implies that Counsel of Record for Latham may have advised against the production of these drawings at the time they were called for. On the contrary, Counsel for Latham used every means in his power to trace these drawings or to locate them if they existed, urging upon Professor Latham to search everywhere among his effects. Upon consulting with Mr. Abbot as to the progress of this case (Mr. Abbott being the attorney for E. & H. T. Anthony & Company) he concurred with me in the opinion that a further effort should be made to find any drawings heretofore made relating to this case. I am entirely satisfied that the drawings were discovered under the circumstances related by the witness. The production of the drawings now is, in my opinion—inasmuch as

they do not affect the question of priority of invention—entirely proper rebutting testimony to meet the assertions under oath of the witness Lauste.

Counsel for Casler states that counsel for Latham is entirely mistaken about the inference which he refers to, of any bad faith on his part in relation to these drawings, but he is advised to hang his drawings either on one horn of the dilemma or the other, either that he puts in these drawings as rebutting testimony or that he puts them in because of the demand of counsel for Casler for them. Both reasons have been given in the record this afternoon.

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A. The building in Frankfort Street and the building in Beekman Street heretofore referred to, as places where our shops were successively, are both buildings, a fire in which would be difficult of extinction. The circumstance that Mr. Lauste had made no working drawings of the machine, no sketches from which the machine could be reproduced, coupled with the circumstance that a very long time had been taken for constructing the machine and coupled also with the circumstance that our money supply was rapidly diminishing, made me extremely fearful that the machine, when in one or the other of the buildings, might some night be burnt up and that we would not have the means with which to construct another one in the slow way in which the first had been constructed. These things led me to direct Lauste to make such drawings as would enable himself or other mechanics to duplicate the machine in case of its destruction. It was a considerable while after I had directed him

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to make the drawings before he did so. There was always work for him to do in the shop and his repeated excuse to me for not having the drawings ready was that he had not had the time to make them.

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I greatly preferred working drawings and when I directed him to make the drawings my expectation was that they would be working drawings. If I had imagined that he would make nothing better than what he did make I should have saved myself months of anxiety by photographing the machine. It was only after he gave me these drawings that I learned of his inability to make working drawings. The tracings were made from the pencil drawings and the blue prints from the tracing. All three were given to me by Lauste at the same time. His name appears on the tracing and blue print, and in his testimony he mentioned that fact as a reason why the device should be considered his own, but no such claim was ever made by him in my hearing and I do not think that prior to the beginning of this investigation he ever had a thought of making such a claim. I hand you two sheets of tracing and two sheets of blue print.

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Counsel for Latham offers in evidence the tracings referred to by the witness, which are marked "Latham's Exhibit, Tracings of First Drawing of Complete Machine," C. E. D. Notary Public, March 11th, 1899.

Counsel for Latham, also offers in evidence, the blue prints referred to by the witness, which are marked "Latham's Exhibit, Blue Prints," C. E. D. Notary Public, March 11th, 1899.

Mr. Marble: The offering and receipt of the tracing exhibit and blue print exhibit

are objected to as not rebutting testimony and therefore incompetent.

Q30. Please state whether or not the tracings and blue print just offered in evidence and the original drawings from which the tracings were made were the only drawings, tracings and blue prints made by Lauste for you of the machine "Latham's Machine Exhibit No. 12," or that showed the invention, the subject matter of this interference whether with his name upon them or otherwise?

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A. I answer unhesitatingly that these are the only drawings, tracings, and blue prints of the machine, Latham Exhibit No. 12, or any part of it that were ever received by me from Lauste, and that they are the only ones that have ever been made, so far as I know and believe, either before the construction of the machine or afterwards. The tracings and blue prints are the only drawings with Lauste's name upon them that I have ever laid eyes on and I am absolutely certain that these are what Lauste referred to in his testimony as drawings, tracings and blue prints as having been made by him prior to the construction of the machine.

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Q31. In answer to Question 73 Lauste states that the taking machine, "Latham Exhibit No. 12," was built to take pictures "forty a second." What have you to say concerning this opinion expressed by Lauste?

A. That it shows utter ignorance of the principles of an effective photographic machine. The more rapidly a machine runs the greater is the number of pictures per second that can be photographed but for limitations as to light and the sensitiveness of the film. As a matter of fact, I have

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*Latham, Interference Deposition.*

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never had any reason to believe that the machine could take forty good pictures per second, constructed just as it is. Lauste had heard Mr. Dickson say some nonsensical thing about forty pictures per second being necessary to produce upon the eye the impression of continuous movement, and he was merely echoing that.

Adjourned to Monday, March 13th, at 11 o'clock a. m.

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New York, March 13th, 11 o'clock a. m.

Present—Counsel as before.

Q32. Lauste says in answer to Question 99, that the machine, "Latham's Exhibit No. 12" was not used as a projecting machine, except to make one experiment with it and it did not work, what have you to say as to that?

Mr. Marble: Question objected to because it does not call for rebutting testimony.

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A. That there was never any doubt in my mind or that of my sons, of the possibility of using it as a projecting machine. It was necessary, in our opinion, that the machine to be employed for photographing pictures should be easily portable. To make it so, it was necessary to have small sprocket wheels. The only earthly reason why the machine with the small sprocket wheels was not precisely suitable for projection was that we had discovered that the film in process of development changed length. The sprockets on the wheels we employed, whether those wheels were large or small, were, if

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I remember correctly,  $3/16$  of an inch apart, that is, from centre of base of sprocket to centre of base of sprocket, and the perforations in the strip from centre to centre, were  $3/16$  of an inch apart. With a small sprocket wheel, having sprockets of a given height the distance between the points of the sprockets bears a larger ratio to the distance between the bases of the sprockets than would be the case with large sprocket wheels and supposing that a developed positive picture strip should be of different length from the corresponding undeveloped negative strip, the sprockets of a larger sprocket wheel would be more apt to enter the perforations than would be the sprockets of a smaller sprocket wheel. For films of short length it is possible to have the developed positive of the same length as that of the undeveloped negative. With such a positive strip Latham's Exhibit No. 12, will project pictures as well as it can photograph them. With developed positives different in length from the undeveloped negatives produced by the machine, projection can be made in all cases where the variation between the lengths of the undeveloped negative and the developed positive is not unduly great. I understood perfectly well that by enlarging the sprocket wheels I could meet all the conditions of projection. The reason why I abandoned the idea of using Latham's Exhibit No. 12, as a projecting machine was, that I believed the strain that machine would give to the film would shorten its life too much, and meanwhile, I had found out how to project the pictures of a continuously running film.

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Mr. Marble: Answer is objected to as irresponsible and as a useless waste of time.

Q33. State whether or not the machine, Latham Exhibit No. 12, in the condition in which it was sent to the Patent Office is capable of projecting pictures of objects in motion?

Mr. Marble: Same objection, and also leading.

A. It is. It is only necessary to add a projecting lens and a suitable light.

2873 Q34. At the time that Kleinert came to work for you at the end of December, 1894, as he has testified, how far completed was the invention which is embodied in Latham's Exhibit No. 12?

A. It was completed except that I had not been able to acquaint myself with an intermittent device that seemed to me satisfactory. There was never any thought in my mind of inventing such a device but my effort was by searching such books and catalogues of machinery as were within my reach to discover something that might seem to me suitable.

2874 Q35. Now, in order to again put the matter on record, and in answer to the testimony of Lauste that he is the inventor of the organization, embodied in Latham's Exhibit No. 12, which you state was completed at the time Kleinert came to work for you at the end of December, 1894, except the striking upon a suitable stop motion device, I wish to ask according to whose ideas and under whose instruction was the invention of that exhibit embodied in the form in which it is shown therein?

Mr. Marble: Question is objected to because it is not rebutting testimony and as leading, and further because the witness

Kleinert has testified that he decided what device should be put in the machine to give it an intermittent movement, and that he "ordered the gearings I thought would answer the purpose," and the witness is not permitted to contradict, under the pretense of rebuttal the testimony of a witness sworn in his own behalf.

A. Both Kleinert and Lauste were in my employ. Both of them knew that I was making the search to which I have referred. Both of them had promised to help me in such search. I went to the standing together looking at a copy of a catalogue shop one morning and found Lauste and Kleinert of the Boston Gear Works. One or the other of them, I forget which, at this moment, called me, directed my attention to several cuts in that catalogue representing broken gear and asked me if I thought that one of them would answer my purpose. I replied that I did think so, and then and there directed Kleinert to write to the Boston Gear Works for one of these sets of broken gear. Not only so far as concerns the machine as it embodies this broken gear just referred to, or one altogether similar to it in principle, but in so far as concerns all the other parts of the machine made or determined upon prior to the adoption of the special form of broken gear, with the exception of mere mechanical details, the device was my own and it is without one shadow of truth or honesty that Lauste claimed the contrary when he was on the witness stand. I desire to add most emphatically that Latham's Exhibit No. 12 is the embodiment, with the exception of mere mechanical details of my own ideas.

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*Latham, Interference Deposition.*

Q36. In answer to question 113 Lauste testified that you did not suggest anything concerning the making of the machine Latham's Exhibit No. 12; is that true?

A. It is most ignominiously false.

Q37. Lauste also testifies that he supervised the making of the parts of that machine which were made at Pearce's shop. To what extent did he and under whose direction?

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A. No essential part of the machine was made by Mr. Lauste. The gear wheels, the sprocket wheels, the worm and all the things that go to make up the machine, except the support, and, perhaps, the shafts, were made by Pearce, under orders from me delivered to Pearce by my son Otway Latham. In all cases, as soon as my son, after having consulted with me, had made up his mind as to just such sprocket wheels, etc., as were needed, Lauste being unable to make the working drawings was sent to Pearce to explain what we needed. That was the sum total of what, in his testimony, he called supervision. At no time, while he was in my employ, had he authority from me to adopt or reject any essential constituent of the machine, and he was never bold enough to attempt to violate my orders, or those of my son, in the smallest particular.

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Q38. When the broken gear stop motion was brought to your attention what did you think of it as a mechanical means for effecting the stop motion action in the machine which you had conceived?

Mr. Marble: Question objected to because it does not call for rebutting testimony, and is therefore incompetent.

A. It seemed to me that it would answer my purpose, provided I could overcome any difficulty arising from possible back lash. I was sure that I could obviate this difficulty if it should present itself by a suitable compression of the film between the guides at the optical axis.

Q39. Lauste testifies in answer to questions 124 and 125 that after he had made the sketch like "Casler's Exhibit Lauste Sketch No. 4," which I understand is similar to the exhibit, "Latham's Exhibit, First Drawing of Complete Machine," he showed such sketch to you and explained it, and that you told him to go ahead; what do you say as to that statement?

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Mr. Marble: Question objected to as misleading, not in rebuttal, and therefore incompetent.

A. The first sketch or drawing he ever made or showed to me was that represented by Latham's Exhibit First Drawing of Complete Machine. Neither when he gave me that drawing in obedience to an order previously received from me to prepare it for me, nor at any other time did I ever tell him to go ahead, and to use his own judgment as to any matter connected with the machine except mere mechanical details.

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Q40. If you have not already answered the question, please state now, whether the exhibit drawing, "Latham's Exhibit First Drawing of Complete Machine" was made before or after the completion of the machine, "Latham's Exhibit No. 12?"

A. It was made long after the completion of that machine.

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*Latham, Interference Deposition.*

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Q41. Lauste has testified that Kleinert was taken into your employ to sweep the shop and wait on him, and that he did no work and slept all day in his (Lauste's) bed, is all of that true?

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A. Kleinert was not employed for any such purpose as Lauste states. He knew then and does know now a great deal more about the principles of a projecting machine than Lauste did or does. Whether or not Kleinert slept on Lauste's bed or anywhere else during working hours I do not know. He certainly impressed me while he was in my employ as an intelligent, faithful and active worker.

Mr. Marble: Question objected to as an incorrect statement of Lauste's testimony.

Recess until 2 o'clock.

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2 p. m.

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Q42. Has it ever been your custom when in a position where you were responsible for the outcome of a mechanical or other undertaking to place yourself in the hands of a mechanic or other person and say to him you do as you think best, and to leave with such person the expenditure of money without restraint, on experimental work?

Mr. Marble: Question objected to because it does not call for rebutting testimony, is speculative, and incompetent for any purposes connected with this case.

A. Never has it been my custom to do so, and I have never in any instance done so.

Q43. You remember the machine introduced as an exhibit in this case, on behalf of Casler and marked "Casler's Exhibit First Machine," and I think you heard or have read the testimony that was offered relating to such machine, now please state, from your knowledge of the construction of that machine, and of the subject of projecting pictures of moving objects, whether said machine can be used for projecting such pictures?

A. I am quite sure that it cannot be used so as to project pictures correctly; that in its present condition, or rather in the condition in which it was when I saw it, it cannot be used to project pictures even imperfectly; that by the use of one or more mirrors properly placed it might be made to project such picture strips as are usually at hand for the purpose, but that the projections would be successively further and further away from their proper place on the screen.

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Q44. The machine in question is a smooth roller machine and has no sprockets. State whether there is any means embodied in the machine to serve as a regulator for the film, and if such means is not essential to successful projection?

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A. Assuming that by the words "means to serve as a regulator for the film" you intend means for varying the feed of the strip relatively to the rate at which the pauses occur or *vice versa*, my recollection is that the machine as I saw it included no such means, and I declare that such means are absolutely necessary to ensure correct projection with a smooth roller machine.

Q45. State whether or not such means is necessary where the film is carried by sprocket wheels as is the case in "Latham's Exhibit No. 12"?

A. No, it is not, for the reason that a sprocket

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*Latham, Interference Deposition.*

wheel in a revolution carries forward a given number of pictures, whereas a pair of smooth rollers in a revolution carry forward a given number of inches of the length of the picture strip.

Q46. Can you give any other reason why you are of the opinion that the machine "Casler's Exhibit First Machine" as constructed cannot be used to project pictures without alteration in the organization or additions thereto?

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A. My recollection is that the machine is so constructed that there could be no one straight line, connecting the light, the picture and the screen, and I have also the impression that the machine as I saw it, is constructed in a way to forbid the use of a mirror so as to obviate that difficulty.

Q47. Have you ever had granted to you any patent for apparatus for photographing and projecting pictures of objects in motion, if so, state whether you recognize the copy of patent now handed you as such patent?

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Mr. Marble: Question objected to as not calling for rebuttal testimony and incompetent.

A. The sheets which you have handed to me are a copy of a patent granted me on March 1st, 1898.

Mr. Marble: Answer objected to as irresponsible.

Mr. Bowen: The copy of patent referred to is offered in evidence and is marked "Latham's Exhibit, Patent 600, 113, C. E. D., N-P., March 13th, 1899.

Counsel for Casler objects to the offering and receipt of the copy of the patent re-

ferred to, because it is not rebutting testimony, and is therefore immaterial, irrelevant and incompetent.

Mr. Bowen gives notice on the record that he will refer at the hearing of this case to the file jacket and contents of the patent just offered in evidence.

Direct-examination closed.

Cross-examination by Mr. Marble, without waiving objections:

XQ48. Did you commence to pay Mr. Lauste at the rate of \$18 per week from the time he first called upon you?

A. My recollection is that I stated in my direct examination that I am uncertain on that point, but that by referring to memoranda in my possession I would be able to testify definitely. My recollection is that I paid him \$18 at first, as I know positively he agreed at first to take \$18, and that I increased it to \$21 after I had found that he was in the habit of working for me on Sundays.

XQ49. Have you that memoranda with you?

A. I have not, sir.

XQ50. Will you obtain this memoranda so that you can state definitely at the next session of taking this testimony, when you did commence to pay him?

A. I will endeavor to do so.

XQ51. Mr. Lauste worked night and day all the time he was in your employ, did he not?

A. He did not.

XQ52. When did he not do so?

A. It is impossible for me to say, inasmuch as I was not always with him.

XQ53. Was the fact that you learned that he worked Sundays the only reason why you increased his wages from \$18 to \$21 per week?

2897 A. Yes, I should say with full recollection of the general statement I made in my direct examination, that it was the only reason. It was that especially that made me think he was unselfishly devoted to my interests. He did not work on Sunday at my request and did not work every Sunday. When he did so my son Otway Latham was usually present with him.

XQ54. How do you know your son Otway Latham was with him on the Sundays when he worked?

A. From report made to me by my son, under whose direction the Sunday work was done.

2898 XQ55. In your answer to Question 11, referring to Mr. Lauste, you said "that in the beginning he agreed to work for us for \$18 a week; that he seemed so anxious to carry out our wishes and seemed such a faithful worker that I voluntarily, or rather at the suggestion of one of my sons, Gray Latham, increased his pay to \$21." Is that statement correct?

A. It is.

XQ56. You were present, were you not, all the time when Mr. Eugene Lauste was giving his testimony in this case?

A. My recollection is that I was not, though I may have been present all the time.

XQ57. Can you say you were not present all the time when Mr. Lauste was giving his testimony in this case?

A. I cannot speak more definitely than I have spoken already.

XQ58. You heard his testimony, did you not, in relation to the several sketches which he testified he made and explained to you before the building of any machine or machines?

A. My memory is not clear as to whether I heard him or not.

XQ59. You saw and examined, did you not, the sketches which he prepared while on the witness stand, as reproductions of the sketches which he made and showed to you before the building of any machine and which he said you took and carried away?

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A. I have an indistinct recollection that I saw some sketches that Lauste made, or was reported to have made while he was under examination as a witness, but I have not the slightest recollection of what they were. The only impression that I have retained in regard to the matter is, that such sketches as he presented embodied nothing more than his recollection of what the machines were after completion.

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XQ60. Is your memory defective?

A. Not, I think, when the thing to be remembered seems to me to be a matter of consequence.

XQ61. It is a matter of consequence, is it not, whether Lauste devised the machine, marked "Latham's Exhibit No. 12," and made a sketch of it, and showed it to you before the machine was made, as he testified he did?

A. I will answer your question, if you will divide it into its three parts.

XQ62. I don't think the question has any three parts, and I therefore repeat it.

A. I therefore choose to answer it in my own

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*Latham, Interference Deposition.*

way. It is a matter of consequence to me and to all honest people whether or not Lauste devised the machine in question, and as to this matter my memory is clear and never could fail. It is a matter of consequence whether or not Lauste made a sketch of that machine before it was constructed, and upon that matter my memory is perfectly clear. It is a matter of consequence whether he showed to me a sketch never made, and which could not have been made by him or anybody else, and upon that matter my memory is as clear as the noonday sun.

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XQ63. Why do you say that a sketch such as Mr. Lauste testified he made and showed to you before the machine was made or constructed could not have been made?

A. Because the idea of it, that is, the image of it, was not in his mind, and was not in the mind of anybody but myself and son.

XQ64. Which son do you refer to?

A. Otway Latham.

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XQ65. The two sheets of drawings, which have been marked "Latham's Exhibit, First Drawing of Complete Machine," as I understand your testimony, were made sometime during the year 1905, after you had moved to Beekman Street, is that correct?

A. I stand by the testimony I gave as to that matter.

XQ66. Is that all the answer that you can give to that question?

A. It is the only answer I propose to give.

XQ67. Can you say whether or not the two sheets of drawings marked "Latham's Exhibit, First Drawing of Complete Machine," were made before your drawings forming a part of your ap-

plication involving this interference were made?

A. I can. "Latham's Exhibit, First Drawing of Complete Machine," were made prior to the patent application drawings.

XQ68. Are you sure of that?

A. Absolutely.

XQ69. Did you have them in your possession when the drawings forming a part of your application involved in this interference were made?

A. My impression is that I did have them in my possession. I am strengthened in that belief by the circumstance that I never had any objection to giving to Lauste the blue prints, and I think that if there had been any occasion for the use of these drawings in preparing the patent application drawings, I would have taken them to the shop, and then would have been reminded of my promise to Lauste touching the blue prints. My impression is that another workman that I had, assisted in making the drawings upon which the patent application drawings were based.

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XQ70. Did you promise to give to Mr. Lauste blue prints which were made from the tracings of the drawing now marked "Latham's Exhibit, First Drawing of Complete Machine"?

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A. I did.

XQ71. When you gave your testimony in chief in this case you did not remember, did you, that there were any such drawings in existence as the drawing marked "Latham's Exhibit, First Drawing of Complete Machine," and the tracings and blue prints which you have now produced and have marked in this case?

A. I neither remembered nor endeavored to recollect any such drawings, for the reason that it seemed to me that drawings made after the com-

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pletion of the machine were of no sort of consequence in the investigation that was being held.

XQ72. You did not mention nor refer to these drawings, did you, in all of your testimony given in chief although you were on the witness stand several days?

A. Probably not, just as I would scarcely refer to your photograph if I were endeavoring to give to somebody an account of your origin.

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XQ73. In your answer to XQ141, in your testimony in chief, among other things you said, "I do not remember to have seen at any time a complete drawing of the machine, as a whole, until the drawings for the patent office at Washington, D. C., had been made," do you now adhere to that statement?

A. I do not, for the reason that my memory has since been refreshed by finding drawings "Latham's Exhibit, First Drawing of Complete Machine."

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XQ74. In the same answer to XQ141, referring to your answer to direct question 8, you say, "my statement ought to have been that so far as I knew, the drawings referred to, were left in the shop that had belonged to me and my sons. Prior to the time when the shop passed out of our control, I frequently saw such drawings in the possession of Eugene Lauste, the mechanic who made them," and in your answer to direct question 8 which is referred to in cross question 141, you call these drawings working drawings, now is it or is it not a fact that Mr. Lauste made working drawings from which to build the machine which has been marked "Latham's Exhibit No. 12" and showed to you such working drawings?

Mr. Bowen: The question is objected to as not a complete statement of what the

witness did say in answer to XQ141, inasmuch as the question omits the witness's explanation given in the latter part of his answer as to the kind of drawings that Lauste made when building the machine.

A. It is not possible that Mr. Lauste ever made while he was in my employ and showed to me any drawings that could justly be called working drawings. There were frequently, prior to the time when Lauste left my employ working drawings made, but my recollection is that they were always made by a man by the name of Wiet, also in my employ, even when they applied to work that Lauste was to do. I have no recollection of ever having seen as made by Lauste any drawings except such rough sketches as would serve to assist his own talk and have never had any reason to believe that he used such rough sketches to assist his work in the way in which mechanics use working drawings. 2912

XQ75. You mean to have the Commissioner of Patents understand, do you not, that Mr. Lauste, while in the employ of yourself and sons, was under the immediate direction of Otway Latham? 2913

A. I do.

XQ76. In XQ126 of the examination of Mr. Otway Latham, he was inquired of as follows: "Did any one but Mr. Lauste, as far as you know, make any mechanical drawings, as you call them, just before or during the construction of Latham Exhibit No. 12?"

A. I should like to state that in my foregoing answers, instead of the word "mechanical" I would like to use "working." As well as I can remember, Lauste made all of the working drawings. Can

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you say that Mr. Lauste did not make all of the working drawings, in view of the testimony of your son, and that there were no working drawings?

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A. I can, notwithstanding the testimony of my son, say as I have already repeatedly said, that, to the best of my knowledge and belief, Lauste never made a working drawing while he was in my employ. I have no doubt that my son, when he used the expression working drawing, had his mind on nothing more than the rough sketches so often referred to by me. He is not a mechanic, and is not familiar with the meanings of words as mechanics employ them.

XQ77. Did you consider Mr. Lauste a mechanic?

A. I did consider him a mechanic of a certain sort.

XQ78. Did you consider that it was the proper thing to put a man who was a mechanic under the direction and control of another man who was not a mechanic?

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A. Perfectly so, under the circumstances. My son was over him as my representative. It was my money or money for which I was personally responsible that was being expended.

XQ79. If you were not present, and your son did not know anything about mechanics, what direction or instructions could Mr. Lauste receive from either of you?

A. The supposition you make is a false one, inasmuch I have not said that my son did not know anything about mechanics. My son knew, for instance, what a sprocket wheel was, and when we had agreed to have one made he simply directed Lauste, inasmuch as Lauste could not make it himself, to go to Pearce and to explain to Pearce the dimensions of the sprocket wheel required. Just

as it was with a sprocket wheel so it was with every other part of the machine. Lauste was either directed by my son to make it, or, if for any reason he did not care to deliver the order to Pearce directly, he sent Lauste to Pearce's shop.

XQ80. You have testified that your son Otway was not a mechanic and your son Otway has testified on the subject himself. When I tried to get him to state something about the sketches which you claim to have made in July and August of 1894 the question 115 being repeated, he said, "I do not remember sketches shown to me by my father in the months of July and August of 1894, as I was unfamiliar with mechanical matters at that time. It was only when I began active work in the experimenting and the construction of this apparatus that I paid any particular attention to drawings or sketches that were shown to me or that such things made any impression upon my mind"; do you think that a man who made such an answer as that was a man to put over a skilled mechanic like Mr. Lauste?

A. If I had not thought so I would not have done so; and I should like to add to this answer that so far are Mr. Lauste's present employers from putting a higher estimate upon his abilities than I did, that from the time he left me and went to them, to the time when he was brought from Europe here as a witness, he had been employed by them to do only the kind of work that I had had done by boys after twenty-four hours' instruction, that is, they had employed him in the capacity of what he calls "operator," and that is, that he was employed simply to run their machines, all of which information was given to me by Mr. Lauste himself.

XQ81. Mr. Lauste has testified that he went into your employ, or rather went to work in the

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shop on Franklin Street on October 4th, 1894, do you know whether that is so or not?

A. I do not.

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XQ82. On your direct-examination in the taking of rebutting testimony you were asked by your counsel in question 6, as follows: "When Lauste entered your employ did you explain to him fully what you wished to have him do and also explain to him the invention he was to embody in the machine," and you answered as follows: "I did not. I informed him that he would receive his directions from my son Otway Latham. It was impossible at that time for me or Mr. Dickson, or either of my sons, to explain to him the invention that he was to embody in the machine for the reason that no one of us at that time had anything but the most general notion of what such a machine ought to embody." Is your answer to that question correct?

A. Perfectly so.

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XQ83. You have testified that as to several matters, to which your attention has been directed by your counsel, Eugene Lauste, while on the witness stand in this case, testified falsely. Why did you not have him arrested for perjury, if your allegations are correct?

A. It did not occur to me to do so, and I am by no means sure that I would have done so if it had occurred to me.

XQ84. Is that all the answer you have to give to that question?

A. The question is as to why I did not have Mr. Lauste arrested for perjury. I think I answered that question fully when I said that it did not occur to me. If counsel desires a fuller answer than that, and desires to have me say why

in all probability it did not occur to me, and will put his question in form, I will endeavor to answer it.

XQ85. You heard, as I remember, all or nearly all of the testimony of Mr. Lauste as it was given commencing on April 29th, 1898, and continuing until a late hour on the 30th of said month, do you mean to be understood that it did not occur to you then that Mr. Lauste, as you now say and swear, testified falsely on the points which you now accuse him of testifying falsely on?

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A. I feel indignant at this inquiry, because I am inquired of, as to whether I have said what counsel knows perfectly well I have not intimated. He asked me why I did not have Lauste arrested for perjury, I replied that it had not occurred to me to do so, and now he asks me a question that he hopes I will incautiously answer in a way to indicate that I did not at that time know perfectly well that Mr. Lauste was lying.

XQ86. Have you not testified yesterday and today that some of the testimony that Mr. Lauste gave was false and even ignominiously false?

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A. I refer you to the record for information.

XQ87. Is that all the answer you have to make to my last question?

A. That is all the answer that I have to make.

Adjourned until to-morrow, Tuesday, March 14th, 1899, at 11 o'clock.

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New York, March 14th, 1899, 11 A. M.

Present—Counsel as before.

XQ88. Were you able to find the data from which you can tell when Mr. Lauste entered your employ?

A. I think so.

XQ89. Please state when it was that he entered your employ?

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A. The memoranda in my possession lead me to the conclusion that his employment began, that is, that he began to be paid for his services on November 2nd, 1894. My recollection is that for some days previously he went about the city with my son, Otway Latham, in search of a suitable workshop and to find where might be obtained the tools and machinery that we needed. The very first payment of salary that I ever made to him was made on November 24th, 1894. It was a payment of \$21 for seven days' work.

XQ90. Did you remember when the rent commenced to run on the Frankfort Street shop which you occupied?

A. The memoranda in my possession lead me to the conclusion that the rent of that shop began November 1st, 1894.

XQ91. Independent of the memoranda which you have found, can you tell when Mr. Lauste entered your employ?

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A. I cannot.

XQ92. What is the nature of the memoranda you refer to?

A. My cash account, a list of expenditures given to me sometime, possibly in November or December, 1894, though not dated, that had been made by my son and the receipts in my possession for the rent of the Frankfort Street shop. I would like to add that when I said that the list of expenditures given me by my son was not dated, I meant that I had not observed a date on it. Some of the expenditures he had made were dated and some not.

XQ93. Have you not that memoranda with you?

A. No, sir, and I would not produce it if I had.

XQ94. Why wouldn't you produce it, if you had it here?

A. I am glad of an opportunity to answer that question. Casler and his attorney started out in the hope that they would be able to prove that his device antedated mine. They quickly saw that that would be impossible and they brought here from Europe a Frenchman by the name of Lauste, who had worked for the Casler Company ever since his connection with me was severed, a man whom they own, to endeavor to prove by him that while he was a mechanic working for me he and not I had invented a machine which I had sworn that I had invented. In other words, I am thoroughly satisfied that this witness was suborned by them in order to prove perjury in me. The whole thing seems to me so ungracious, so ungentle, so vulgar, so absurd, that I do not choose in such a contest to present papers that other people than myself have an interest in having kept in my hands.

Mr. Marble: The answer is objected to as  
irresponsive and apparently venomous.

XQ95. Does the memoranda from which you have formed your conclusions give any other data in relation to Mr. Lauste than the payment to him of \$21 in November, 1894?

A. The list referred to as having been given to me by my son of expenditures that had been made by him includes mention of only two payments made by him to Lauste, one was a payment of \$21 made on the 11th of November, 1894, and there is a memorandum of my own to the effect that this payment was for the time up to and in-

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*Latham, Interference Deposition.*

cluding November 8th, 1894. The other payment was made according to his memorandum, unless my memory fails me, on the 19th of November, 1894. This also was a payment of \$21, and my conclusion is, that after Lauste's first week's work for us we determined to add \$3.00 a week to the \$18.00 he had promised to work for. I should like also to say, that after leaving the witness stand yesterday afternoon I saw my son, Gray Latham, who told me that I must be mistaken in supposing that he had advised me to increase Lauste's salary from \$18 to \$21 a week, for the reason that he was in Boston at the time and could not have given me such advice. The probability therefore is, that the advice came from Otway Latham, rather than from Gray Latham.

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Mr. Marble: All of the last answer that refers to Gray Latham and what he says is objected to as irresponsible and useless.

2934 XQ96. Is it a fact that during the months of November and December, 1894, that you were seeking to have the arresting device suggested by Mr. Dickson applied to a machine for projecting pictures of moving objects upon a screen?

A. With a clear understanding of the meaning of the word "seeking," I reply most emphatically, no.

XQ97. In your answer to direct question ten of testimony in chief, the following occurs, "During the months of November and December, it was Mr. Dickson's habit to come over to the shop at 35 Frankfort Street, from his home in Orange, N. J., one night in every week professedly to direct Eugene Lauste, the one mechanic in my employ, in his work of carrying into practice the aforemen-

tioned idea of Mr. Dickson for intermittently arresting the movement of the film," is this statement in your answer to question referred to correct?

Mr. Bowen: Question is objected to as it is not at this time proper cross-examination, but as going into the examination of the witness when testimony in chief was taken. It has no relation whatever to the testimony taken in rebuttal.

A. Perfectly so.

XQ98. Then it is a fact, is it, that as late as December, and by that I mean by the end of the month of December, 1894, you had not hit upon any device for arresting the movement of the film. and was trying to see if you could not find such device in the one suggested by Mr. Dickson?

Mr. Bowen: Same objection, and the attention of the Commissioner of Patents is called to the fact that this line of examination, besides not being proper cross-examination, is unnecessarily loading the record with matter that counsel has no right at this time to review under the guise of cross-examination.

A. I have already testified fully upon this matter and stand by the statements I have heretofore made.

XQ99. Where have you fully testified in relation to this matter?

A. Search the record and you will see.

XQ100. Is that the best answer you can give to my question?

A. It is the only answer I propose to make in view of the objections just made by my counsel.

XQ101. Can you describe the construction of the machine which was introduced in testimony, marked "Casler's Exhibit First Machine."

A. I decline to answer that question, in view of the objection just made by my counsel.

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Mr. Bowen: I think the witness should answer the question last put, as it is evidently asked with a view of testing the witness's knowledge of the invention in dispute; that is his knowledge of the organization of the invention. The objection above placed on record does not include a question of this nature.

Mr. Marble: Answer objected to as irresponsible and question repeated.

A. I can, so far as the essential features are concerned.

XQ102. Describe it?

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A. It contains a pair of smooth feed rollers, for delivering the film towards the window. It contains on the opposite side of the window a pair of smooth feed rollers, one of which runs continuously. Between these last-mentioned feed rollers the film passes so that when it is not clamped the second of the two rollers freely mounted on its shaft does not turn. The clamping arrangement worked, if I remember correctly, by a crank and serving to arrest the film intermittently, is geared unalterably to the shaft of one or both of the feed rollers that serve to deliver the film to the window. When the film is clamped the feed rollers last mentioned serve to make a loop on the side of the win-

dow they occupy, and when the film is unclamped the loop is taken up by the other pair of rollers that I have referred to.

XQ103. Is this the best answer you can give to the question last propounded to you?

A. That is a question extremely difficult to answer. A man never knows when he has expressed a thought whether or not he might find, if he were to try, a better expression of it. I am satisfied with my answer as I have given it.

XQ104. Do you know what the issue of this Interference covers?

A. I think so, sir.

XQ105. Please state what the issue of this Interference covers?

A. It covers the use of a picture strip, means for supporting and feeding it through the machine, means for arresting it at intervals at the optical axis, in a way such that the time of movement shall be less than the time of rest, and a device, called, I think, by others a "tension device," whose sole purpose is to hold the film flat at the window. It includes one more thing which I, for the moment, forgot, namely, means for creating slack, or a loop on one side of the window, that towards which the film is fed, while the film is arrested in its movement at the window.

XQ106. You were asked yesterday by your counsel in question 44, as follows: "The machine in question is a smooth roller machine, and has no sprocket. State whether there is any means embodied in the machine to serve as a regulator for the film, and if such means is not essential to successful projection?" This question refers to the machine introduced on behalf of Mr. Casler, and marked "Casler's Exhibit, First Machine." Does

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*Latham, Interference Deposition.*

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the issue of this Interference cover, as one of its elements, means to serve as a regulator for the film?

A. I do not know what you mean by means to "serve as a regulator for the film."

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XQ107. In my question I am simply using the language of the question which was put to you by your counsel, in substance. You answered that question yesterday, I mean Question 44, and I was surprised that you did, first being surprised at your counsel asking it; but I will quote the language in full referring to the Casler machine and see if you can answer it. "State whether there is any means embodied in the machine to serve as a regulator for the film, and if such means is not essential to successful projection?" Can you answer the question now?

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Mr. Bowen: In view of the statements embodied in the foregoing question, I think it fair that I should state that the question asked the witness on his direct-examination had reference to the Casler machine, which as stated in the question, is a machine without sprockets but employing smooth rollers, and the inquiry was to ascertain whether the witness regarded such a machine as capable of projecting without some means of controlling the movement of the film.

Counsel for Casler says, that the remarks of counsel for Latham are wholly uncalled for, as the entire question was repeated to the witness in XQ106, and by so repeating it, the witness was fully advised of what was being referred to and in part of its construction. It is hardly to be presumed that the witness needs any coaching.

A. The intimation made by counsel for Casler that I would vary my testimony at a suggestion made by my attorney or anybody else I repel most indignantly. The question 44 asked me yesterday by my counsel is a question that I answered only after assuming that he meant something else than just what he had said. I knew perfectly well what he referred to and I knew my assumption was a just one, and one that I had the liberty to make in that case, but I have no right to assume that Mr. Marble means anything but what he says, and I repeat that I do not know what he means by "means for regulating the film."

XQ108. Do you mean to be understood that you do not understand Direct Question 44?

A. On the contrary, I have already stated that as coming from my own counsel, I understood its meaning perfectly, but I do not know that you mean by the words what he meant, and I do not believe it, because if you did you would ask me to answer the question under the same assumption that I made yesterday.

XQ109. So that your mind might be fully prepared for the question, I asked you, in substance, if you understood the construction of the machine marked "Casler's Exhibit First Machine," and you said you understood, you thought, the essential features. I then asked you, if you understood the issue of this interference, and you stated that you did, and then I asked you in the natural order if the issue of this interference covered as one of its elements, means to serve as a regulator for the film, which is the pith of Direct Question 44. Now, I would like to have you state, if you can, whether the issue of this interference calls for any means to serve as a regulator for the film?

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Latham, Interference Deposition.

A. The issue of this interference covers a *projecting* machine. A machine in which between the smooth delivering feed rollers and the arresting device there is unalterable gearing, is, in my opinion, not a projecting machine. If you mean to ask me whether or not there is a specific mention in the interference issue of alterable gearing between the delivering rollers and the arresting device, I answer, no.

Recess.

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XQ110. Have you read the Issue of this Interference?

A. I have, not for some days, though.

XQ111. You know, do you not, that the Issue of this Interference does not cover an entire projecting machine, but simply one of the combinations in such a machine?

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Mr. Bowen: Exception is taken to the question just propounded for the reason that the elements of the Issue of Interference undoubtedly comprise a complete apparatus for projecting pictures of moving objects. While the issue as defined may not include mere details such as are to be assumed present, it certainly includes sufficient for an operative machine. The issue itself if it comprised the only claim in a patent would be sufficient to support the patent, I think.

Counsel of Casler excepts to the so-called exception of counsel for Latham because it is unnecessary to inform this witness what the opinion of his counsel is in relation to the Issue of Interference. Counsel for Casler further says that the

combination of elements set forth in the Issue of Interference without other elements not therein named for projecting pictures upon a screen representing moving objects, and that while it may be true that a patent with a claim in the language of the Issue of Interference might be sustained if it was infringed like other claims which cover a part of a structure it would not be a sufficient claim standing alone to cover an entire structure or to cover a complete machine, as all of the machines, that is, the machines of the respective parties to this Interference fully demonstrates. Without other elements than those mentioned in the Issue of this Interference, no machine could be used for the projecting of pictures upon a screen.

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Mr. Bowen: Further objection is taken to the question propounded on the ground that the witness is not an expert in patent matters nor is he to be assumed to be familiar with the Patent Law and the construction to be given to claims in patents. He has not been qualified as an expert in either of these respects.

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Counsel for Casler calls the attention of the Commissioners of Patents to the exception and the objection of counsel for Latham and asks him to note that the reprehensible character of the exception and of the objection apparently given to aid the witness in forming an answer to the question.

A. While the question may have some special meaning that does not appear to me and while I know nothing of the matters just now discussed by

my counsel and that of Casler, I do not hesitate to declare it as my belief that leaving out the words, "In a picture exhibiting apparatus for giving the impression to the eye of objects in motion," in the issue, a machine might include everything else mentioned in the issue and be yet not a machine capable of projecting correctly pictures of moving objects.

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XQ112. It is a fact, is it not, that the combination of elements mentioned in the issue of the interference striking off the introductory words which you have stricken off in your last answer is a good combination of elements in a camera or in a projecting machine, and equally applicable in both, or in a machine which can be used as a camera or used as a projecting machine?

A. I don't like to adopt your word "good," but I would say that the combination you refer to is an effective one for a photographing machine but that it is not necessarily an effective one for a projecting machine.

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XQ113. I have asked you two or three questions about the issue of this interference and the combination therein set forth for a purpose. I see that you understand the issue of the interference when you put your mind upon it. Now I do not think that you have answered XQ109, at least that part of the question which is important, and I will repeat the last clause of that question and ask you to answer it. "Now I would like to have you state, if you can, whether the issue of this interference calls for any means to serve as a regulator for the film?"

A. Before I attempt to answer that question, will you inform me whether or not I am to assume that by your expression "regulator for the film"

you mean a device for varying, while the machine is in operation, the feed of the film in the intervals of exposure, or varying the length of the interval of exposure without altering the feed?

XQ114. No. I do not mean any device. I have taken the language substantially from the direct question 44 asked by your counsel. I don't think my question or your counsel's question requires you to assume anything. It simply asks you to look at the issue and then state whether or not you find in the issue an element which is referred to as "means to serve as a regulator for the film?"

A. Waiving any mention of the very great difference I see between the question asked by you and the question that was asked by my counsel and to which you refer, I have no hesitation in saying, that though I have just now read carefully the words of the issue of interference, I do not see therein specific mention of any sort of regulator for the film.

XQ115. You know, do you not, that the broken gear or Geneva stop which you obtained through Mr. Kleinert from the Boston Gear Works, was never put into your machine, called in this case "Latham's Exhibit No. 12"?

A. I know it now, but I did not remember it when I was first called as a witness in this case; but I do know that another one precisely similar in principle, but of smaller size, was put into "Latham's Exhibit No. 12," and is in it now, unless it has been removed since the exhibit was sent from here to Washington.

XQ116. The stop movement, which you say is in the machine now, is just the opposite in construction, is it not, from the one that you obtained from the Boston Gear Works?

Mr. Bowen: Question objected to as not proper cross-examination in rebuttal.

A. Not in one single respect opposite in principle, but differing, as I now think I remember, in the utterly unimportant circumstance, that in the device got from Boston the driver was within the driven wheel, whereas, in the one now in the machine the driver is on the outside of the driven wheel.

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XQ117. The stop movement which you got from Boston could not be used, could it, in Latham's Exhibit No. 12?

Mr. Bowen: Same objection.

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A. It could not be used, for no other reason than the following: The supports for two such wheels, one of them outside of the other, must be different from the support of two such wheels when one of them is inside of the other, and the wheels got from Boston, certainly the larger one, was, if I remember, too large for the space occupied by the wheels now in "Latham's Exhibit No. 12."

XQ118. Mr. Lauste not only advised this change in the stop movement which you have mentioned, but he went to Pearce's shop and stayed there until he had the stop movement made as it was finally put in the machine, is this not so?

A. I have not testified to any such thing.

XQ119. Is that all the answer you can make to that question?

A. Oh, no, I could make a great deal larger answer than that if I choose to do so.

XQ120. Why don't you answer the question then?

A. Because I have heretofore testified most fully as to every matter referred to in your question.

XQ121. I think you are mistaken, Professor, but if you wish to leave the matter there we leave it on other testimony?

A. I have testified that Lauste never went to Pearce's shop except under orders. I have testified that he did not invent the stop movement employed. I have testified that I was in search of a stop movement that might seem to be suitable for my purposes; I have testified that both Lauste and Kleinert had promised to assist me in such search; I have testified that when the two were standing together one morning in the shop, looking together at a copy of the Boston Gear Work's catalogue, I was asked by one of them whether a broken gear pictured in that catalogue, would, in my opinion, be the thing I wanted. I have testified that neither Kleinert nor Lauste, nor anybody but myself, determined the question, whether or not such broken gear should be used; I have testified that the broken gear first used was ordered from the Boston Gear Works, by Kleinert under my direction, and I now swear that neither Lauste nor anybody else had the right to command me in the matter, and that I paid for the broken gear, giving to Kleinert at the time when I directed him to write for it some \$5.00 as I remember, as a prepayment. From the beginning to the end of the conception and the construction of Latham's Exhibit No. 12, I have testified and do reiterate the testimony now that there is not one single essential feature in the machine that Lauste or anybody else but myself, can justly lay claim to having introduced into the machine. That being the case it does seem to me that I was not wrong when I stated

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just now that I had already testified to all the matters referred to in your question.

Mr. Marble: Answer objected to as uncalled for and volunteered.

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XQ122. In your answer to XQ369, in your examination in chief, in which you were asked "When did you then conceive of the means which you would employ, and make up your mind how the different parts of the appliance should be connected together so as to make them co-operative," and you answered, "I will answer the last part of your question first. Questions touching the connection of the several leading parts of the apparatus together so that they would work in co-operation were left almost exclusively to the mechanic;" to what mechanic do you refer in your answer?

A. To the mechanic that happened to have in charge the work that was to be done. Sometimes that mechanic was Lauste, sometimes it was Kleinert.

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XQ123. Can you tell any work which Mr. Kleinert did in the building of "Latham's Exhibit No. 12" in which he determined the "connections of the several leading parts of the apparatus together"?

A. That depends altogether upon what you mean by the connections between the parts. If you mean to inquire of me if Kleinert or Lauste or anybody else determined in a general way the relative positions that the several essential parts of the machine should occupy, then I say they did not, but if your inquiry is to mere mechanical details, I can recall to mind some of the things done by Lauste and some of the things done by

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Kleinert. All the sprocket wheels of the machine were made either by Kleinert or under his direction, I think. The arresting device was made by Pearce. These constitute the most essential features of the machine, if not the only ones, and some of the rest, possibly most of them, were made by Lauste. It is more than likely, though my memory is not clear on this point, that Kleinert made, or had made, the shafts that support the sprocket wheels.

XQ124. In your answer to direct question 34, you were understood by your counsel to say, as appears by his question 35, that Latham's Exhibit No. 12 was completed when Kleinert come to work for you, in December, 1894, except the striking upon a suitable stop motion device, did you intend to convey that meaning?

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Mr. Bowen: Question objected to because it does not place upon questions 34 and 35 a just or fair interpretation.

Counsel for Casler asks counsel for Latham to state why his question does not put upon direct questions 34 and 35, a just and fair interpretation.

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Mr. Bowen: Because in question 34 the expression is used "How far completed was the invention which is embodied in Latham's Exhibit No. 12." No reference is there made to the completion of the exhibit, but rather the invention embodied in the exhibit, and in question 35, the "organization embodied in Latham's Exhibit No. 12" is mentioned. The subject of "completed" in question 35, is the "organization." This is the reason for the objection.

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Counsel for Casler calls attention of the Commissioner of Patents to this gross misinterpretation of question 35 according to its plain reading, as stated in the last remark of counsel for Latham. The language of the question is "Now in order to again put the matter on record, and in answer to the testimony of Lauste that he is the inventor of the organization, embodied in Latham's Exhibit No. 12, which you state was completed at the time Kleinert came to work for you at the end of December, 1894, except the striking upon a suitable stop motion device, I wish to ask according to whose ideas and under whose instruction was the invention of that exhibit embodied in the form in which it is shown therein." In connection with that question, I mean question 35, I call attention to question 34. "At the time that Kleinert came to work for you at the end of December, 1894, as he has testified, how far completed was the invention which is embodied in Latham's Exhibit No. 12"?

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"A. It was complete except that I had not been able to acquaint myself with an intermittent device that seemed to me satisfactory. There was never any thought in my mind of inventing such a device, but my effort was by searching such books and catalogues of machinery as were within my reach to discover something that might seem to be suitable." It is respectfully submitted that the question 35 according to its proper construction shows that the counsel for Latham understood that Latham's Exhibit No. 12 was completed at

the time Kleinert came to work for Mr. Latham, except the striking upon a suitable stop motion device.

Mr. Bowen: I stand upon the interpretation that I have placed upon my direct questions 34 and 35. I certainly knew what was in my mind when the questions were asked and I have explained the meaning of the questions only in reply to the request of counsel for Casler to do so. The Patent Office will decide for itself what the questions mean and the witness will answer for himself what his understanding of those questions was.

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A. I did not.

XQ125. You know, do you not, that considerable work was done on Latham's Exhibit No. 12, after Mr. Kleinert entered your employ?

A. I do.

XQ126. The parts of the machine had never been assembled when Kleinert came into your employ, had they?

A. I don't understand what you mean by the machine, that is, I don't understand whether you mean Latham's Exhibit No. 12 or whether you mean a machine embodying the features of Latham's Exhibit No. 12.

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XQ127. I mean the machine marked "Latham's Exhibit No. 12"?

A. Then, I answer, that when Kleinert first came to me, not only were the parts of that machine not assembled, as I recollect, but most, if not all of them, were unmade.

XQ128. Mr. Kleinert, in his testimony, said he left the employment he had been in for your son Gray Latham "in December, shortly before

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*Latham, Interference Deposition.*

Christmas; the third Sunday before Christmas in December, 1894." In direct question 10 he was asked, "do you remember about what date you went to work at the shop 35 Frankfort Street as a machinist? A. I could not remember the exact date but it was before Christmas; it might have been on the 23rd day of December, 1894." Does this date about the 23rd of December, 1894, agree with your recollection as to the time when he entered your employment?

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A. I have an indistinct recollection in regard to the matter. My impression has been that it was not until after the Christmas holidays that he began to work regularly. I believe, however, that I paid him from the time that he left Boston. It may be that it was just before Christmas Day that he came, and that he commenced work within the Christmas week.

XQ129. After the completion of the machine or apparatus, marked "Latham's Exhibit No. 12," you offered to let another apply for a patent on the invention or inventions supposed to be embodied therein, did you not?

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A. I did not.

XQ130. Have you not testified in this case that you did?

A. I have not, but I did testify that I had offered that privilege to another, but it was a privilege relating to a totally different machine from Latham's Exhibit No. 12.

Re-direct Examination by Mr. Bowen:

RDQ131. Referring to your last answer, I think it well to put on the record, an answer to this question: State whether or not the offer to which

you refer was not made because there was some doubt in your mind as to whether that other invention was so far the result of your conception as to make it proper for you to apply for a patent for it, and that you did not intend to turn over, to another, even if you could have lawfully done so, the right to take a patent for an invention that you had actually devised?

A. Certainly, and I was only induced to make the application myself on the assurance given me by the person to whom this offer was made that it was right and proper that I should do so.

Mr. Marble states that he forgot to ask the witness a question or two; therefore resumes the Cross-Examination.

XQ132. Mr. Lauste, as I remember, and as the record will show, made while he was on the witness stand four sketches or drawings numbered 1, 2, 3, and 4, and testified that the originals of those sketches were given to you. You have produced one of the drawings, which Mr. Lauste made, and also a tracing and blue print of the same. Where are the other drawings which Mr. Lauste said he gave you or you took to your home?

Mr. Bowen: Question is objected to for the reason that it is immaterial and irrelevant. The sketch No. 4 which Lauste made while on the witness stand was asserted to be a sketch embodying the invention of this Interference. At the present examination, the witness has produced the drawings that he found, after a search, that embodies the invention of this Interference. He has not produced any other drawings irrelevant to

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this Issue and no testimony having reference to such other invention is competent or admissible in my opinion.

Counsel for Casler says that these drawings are important because if produced they would corroborate Mr. Lauste and would show or tend to show that he made the drawings after which the machines were made while in the employ of Mr. Latham and his sons, or of the Lambda Company, of the Eidoloscope, and for this reason he has made inquiry about them.

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A. I once more declare most positively that I never received from Lauste drawing that were made prior to the construction of the machine they were intended to represent. The first drawings made for me by Lauste were made from the machine to which reference was made just now as one that I had hesitated to apply for a patent upon. These drawings were made by Lauste under my orders. When finished they were given to me and I handed them over to Mr. Edmond Congar Brown, attorney at law, already referred to in this investigation, and Mr. Brown got a draftsman to make from them, drawings to be sent to the Patent Office in Washington. These last were sent to Washington by Mr. Brown for me. He was at that time my Patent Attorney. My recollection is, that owing to some question raised by the Patent Office I concluded to make a little change in the drawings, and consequently in the application. It is more than likely that other drawings were made by Lauste differing from the first to the necessary extent. My recollection is not clear, but I think, that this alteration was made while yet Mr. Brown

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was my attorney, and that the second set of drawings were put into his hands just as I had put the first ones. Afterwards Mr. Brown ceased to be my Patent Attorney, when Mr. Bowen became my counsel before the Patent Office. I never regarded the drawings that were put by me into Mr. Brown's hands as of any value after the patent drawings had been made, and I have never asked him to return them to me, and he has never done so, or offered to do so. The next occasion I had for drawings was the one I have already mentioned, namely, the circumstance that I feared that Latham's Exhibit No. 12, might by fire, or otherwise, be lost to me. The drawings that were made by Lauste, of that machine I have already submitted as an exhibit in this case. In the early winter, of 1896, the Lambda Company sold out to the Eidoloscope Company or to a company of gentlemen, who afterwards called themselves so, such interests in my machine as I had transferred to the Lambda Company, including "Latham's Exhibit No. 12," and the Eidoloscope Company requested me to apply for a patent on that machine, a thing that I had previously, for what seemed to me to be sufficient reasons, neglected to do. In the summer of 1895, I ordered Lauste and Eugene Wiet whom I had then employed—I would say in the summer or early fall—to make two machines like "Latham's Exhibit No. 12," except that the worm and gear in Latham's Exhibit No. 12, which I had found not to be durable, were to be replaced by beveled gears. When I came to make the application for a patent on this machine, the patent drawings were based on one of these last mentioned two machines, rather than on Latham's Exhibit No. 12. Mr. Raphael Netter, a well known draftsman of this

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city, prepared the patent drawings for me. I have copies of them, I believe, and my impression is, that Mr. Netter's drawings were made from the machine directly, and that Mr. Lauste never did make any drawings as a basis for this patent application.

XQ133. In your answer you have referred in your way to the drawings produced by Mr. Lauste, and marked 1, 2 and 3, and have said nothing about his No. 4 what have you to say about that?

2993

A. I beg pardon, I have not said anything about Lauste's drawings, 1, 2 and 3, as I do not know what Lauste's drawings, 1, 2 and 3, were, but I have referred to drawings of Latham's Exhibit No. 12, and to drawings of another machine, that was certainly made for me by Lauste. I have referred to an altered drawing of a machine, only slightly different from the last one mentioned, that Lauste may possibly have made for me, and finally I have referred to a fourth set of drawings made by Mr. Netter which I do not believe Mr. Lauste ever had anything to do with. The drawings made by Mr. Netter differ from the drawings of Latham's Exhibit No. 12 in this, substantially, that in Latham's Exhibit No. 12 a worm and gear are employed whereas in the machine Mr. Netter made the drawing of the worm and gear are replaced by beveled wheels.

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XQ133. Do you deny that you had a drawing from Mr. Lauste corresponding to the reproduction he made while on the witness stand and which he numbered 4?

A. I deny most emphatically that I have or ever have had any drawings from Mr. Lauste other than the ones mentioned in my last answer. I deny most emphatically that I have ever seen or heard

of other drawings than these of the machine which is the subject of this investigation, other than such rough sketches as I have already mentioned as having been made by him occasionally to enable me to understand his speech.

XQ134. Will you obtain and produce the drawings you admit you had and put into the hands of your then attorney Edmond Congar Brown which were made by Mr. Lauste in order that they may be marked as exhibits in this case?

A. I shall be governed by the advice of my Counsel.

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Mr. Bowen: The drawings inquired about are of an invention different from the subject matter of this interference and they are drawings of an invention for which the witness has now pending at the Patent Office an application for a patent. If the drawings could be produced by the witness I should object to their being offered as an exhibit in this case as it would disclose to others an invention not yet patented and which the witness is justified in not disclosing while his application for a patent is pending. Moreover, the drawings inquired about have nothing to do with the invention of this controversy and are therefore immaterial as evidence in this case.

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Counsel for Casler in reply to the objection and speech by counsel for Latham states that Mr. Eugene Lauste said he made these drawings and let Mr. Latham take them or he did take them; he also swears that he communicated to Latham the al-

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*Latham, Interference Deposition.*

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leged invention therein and the invention illustrated in the drawings which have been produced by Mr. Latham and marked, "Latham's Exhibit, First Drawing of Complete Machine." Mr. Lauste has also made drawings or sketches as reproductions of the drawings, and we have a right to have these drawings produced to confirm Mr. Lauste in his testimony, inasmuch as they are in existence and within the control of the witness if he wishes to assert his rights, therefore we ask that they be produced.

2999

A. In view of the circumstances connected with these papers, to which reference has been made several times since the beginning of this investigation, I refuse to make any effort to recover the papers that I put into Mr. Brown's hands.

W. LATHAM.

Testimony in rebuttal closed.

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1001

**Complainant's Exhibit N.**

3001

**COMPLAINANT'S EXHIBIT.**

**Colt Bills and Letter.**

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS COM-  
PANY,

Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,  
Defendant.

3002

BENJAMIN BARKER,  
Examiner.

JAS. B. COLT,

CHARLES GOODYEAR, JR.

J. B. COLT & CO.,

Manufacturers of Optical Lanterns, Lantern Slides, 3003

AND SPECIALTIES,

P. O. Box 2773.

16 Beekman Street,  
New York.

New York, Dec. 18th, 1894.

Prof. W. Latham,

c/o Hotel Bartholdi,

Madison Square, South,

New York City.

Dear Sir:

In accordance with our verbal understanding, we write to say that we propose to furnish you with five (5) projection lanterns, including electric

3004 lamps condenser cells with combination of  $4\frac{1}{2}$  and 5 in condensers, the  $4\frac{1}{2}$  in lens to be mounted in springs, five (5) optical benches for same, with objective supports, and five (5) short focussed objectives, all as per sample that you have been using, for the sum of Five hundred (\$500.00) dollars, the receipt of Two hundred and fifty (\$250.00) dollars of which we hereby acknowledge, the balance to be paid on the delivery of the goods within thirty (30) days from December 17th.

Yours very truly,

3005

J. B. COLT & CO.,  
C. G., Jr.

3006

LATHAM EX. 6. J. A. S. COM'R DEC. 4. 1897. 3007

AMET	}
vs.	
LATHAM	
vs.	
CASLER	
vs.	
ARMAT.	

No. 16 Beekman Street, P. O. Box 2773  
 New York, Jany. 14/95. 3008  
 Prof. Latham Bartholdi Hotel,  
 City.

Bought of J. B. COLT & CO.,  
 Patentees and Manufacturers of

JAMES B. COLT.

CHARLES GOODYEAR, JR.

IMPROVED MAGIC LANTERN AND LANTERN SLIDES,  
 AND SPECIALTIES.

Agents for Baldwin DESIGN PAPER from Steel Plates  
 and Evans & Son's EAGLE CLAW TRAPS.

5 Cut Elec. Lant. Combin. cells  
 4½x5 lenses carbon holders 3009  
 for ⅝ carb. No bellows or  
 front.

5 Optical Benches.

5 Object supports for use on op-  
tical bench.

5 Special short object (focus), 500.

Expressage from Paris 2.95

Telegram to Paris 3.00 505.95

---

 Less 250.00

---

 \$255.95

Above goods are ready for delivery

1004

3010

STATEMENT.

P. O. Box 2773.

New York Feby. 1st/95

Prof. Latham

To J. B. COLT & CO. Dr.

	16 Beekman Street.
Jany. 14 To Mdse	502.95
Dec. , 31 " Cash Telegram to	
Paris	3.00
	<hr/>
	505.95

3011

94.

Dec. 18 By Cash

250.00

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\$255.95

J. B. Colt & Co.,

PAID

Feb. 2 1895.

Per A. Schmidt.

3012

**Complainant's Exhibit O.**

3013

Amet vs. Latham vs. Casler vs. Armat.

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS Co.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,  
Defendant.

3014

BENJAMIN BARKER, Examiner.

COMPLAINANT'S EXHIBIT.

**Clipping From Chicago Inter-Ocean.**

EDISON IS NOT IN IT.

Kinetoscope Outclassed by Prof. Latham's Newest. 3015

Calls it Eidoloscope.

Reproduces Continuity of Action Accurately.

Adapted for Anything from a Change of Heart to  
a Prize Fight.

Professor Woodville Latham, late professor of  
chemistry in the University of West Virginia, after

- 3016 years of patient research and study, has perfected a machine which takes Edison's kinetoscope by the nape of the neck and ousts it into obscurity. Professor Latham calls his invention the eidoloscope, and its range of usefulness embraces anything from a lynching bee to a prize fight. In consonance with the popular clamor Professor Latham seeks, and successfully, to bring his invention before the public by way of the prize ring. Recently on the roof of the Madison Square Garden the professor, aided and abetted by Prize Fighters Griffo and Barnett, took in the full gamut of a
- 3017 four-round fight. You do not bend over and get a kink in your neck by looking through a contracted slot. You sit down in a darkened room. The full, life-size pictures in motion of the fighters, their seconds and the referee are thrown out on a canvas in front of you, and every move, lead, feint, counter and duck is reproduced vividly. Howard B. Hackett, in the New York World, goes into ecstasies over the invention. Says Hackett:

- In this city is a man who has taken the kinetoscope and gone it many times better—and he has only just started in. There doesn't seem to be
- 3018 any doubt that when he and his two energetic sons get fairly under way they will be able to play game or nothing with any other three or three hundred men in the presentation for the enjoyment of spectators of actual movements of persons and things.

#### WIDE RANGE OF USEFULNESS.

Life-size presentations they are and will be, and you don't have to squint into a little hole to see them. You'll sit comfortably and see fighters hammering each other, circuses, suicides, hangings, electrocutions, shipwrecks, scenes on the exchanges,

street scenes, horse races, football games—almost 3019  
 anything, in fact, in which there is action, just as  
 if you were on the spot during the actual events.  
 And you won't see marionettes. You'll see people  
 and things as they are. If they wink their other  
 eye, even though not so expressively as Miss Cissy  
 Fitzgerald winks hers, or Thomas C. Platt winks  
 his, you will see the lid on its way down and up.  
 If their hair rises in fright, or grows gray in half  
 an hour, you'll see all the details of the changes.

With a phonographic attachment the possibili-  
 ties are far greater. This involves the reproduction 3020  
 of court scenes, plays, conventions, mass meetings  
 and conversations as natural as life. A little  
 knowledge of the scheme impresses one with the  
 view that its possibilities are almost limitless.

The scheme has a name, of course—a scientific  
 name. It is called the "eidoloscope." Operations  
 were begun with it for the delectation of a curious  
 public on Monday last in a store on lower Broad-  
 way. The sparring contest between Young Griffo  
 and Charley Barnett on the Madison Square Roof  
 Garden on May 4 has been reproduced daily since  
 at intervals of fifteen minutes. Each reproduction  
 lasts twelve minutes. The spectators sit in chairs  
 in darkness and observe the actions and objects 3021  
 displayed on a canvas of good size.

They see Griffo and Barnett advance from their  
 corners and shake hands. They see them move  
 their hands back and forward and dance around  
 warily. They see them counter, duck, swing,  
 upper-cut and give body blows. When they clinch  
 the onlookers laugh as Referee Charlie White parts  
 them and walks between them. They don't hear  
 him say: "Break, there, break." They would,  
 though, with the phonograph attachment. The  
 round ends and the men go to their corners and the

- 3022 seconds are seen wiping their faces and fanning them vigorously with towels. It is all realistic, so realistic, indeed, that excitable spectators have forgot themselves and cried: "Mix up there." "Look out, Charlie; you'll get a punch," "Oh, what do you think of that, Mr. Barnett?" and other expressions of like character. It is wonderful.

#### SOMETHING OF THE INVENTOR.

- The man who is responsible for it is Woodville Latham. He was professor of chemistry in the University of West Virginia. Then he held the same position in Oxford, Miss., in the Mississippi University. Then he went into the real estate business in St. Louis, and then to Chattanooga, where there was a boom. He wishes he had skipped the latter place. Then he came to New York, where his sons, Gray Latham and Otway Latham, had introduced the kineteoscope. He suggested reproductions on a screen. He experimented for a year with a photographic machine. The results were important. They were these: A process by which the reproductions could be magnified to life size, and a process by which they could be projected onto the canvas. The secrets of these processes are his own.

- 3024 More than this. He so arranged the instantaneous photographic machine that it will work for hours if necessary. Edison's photographic machine will work but a moment. The match between Griffo and Barnett lasted twelve minutes.

Even the slightest motion can be reproduced. The act of snapping the finger can be photographed four times. Otway Latham has a scene in which a man is smoking a pipe. The smoke from it can be seen on the canvas. A photographer was out one day recently with a street piano player

for the purpose of catching children dancing to the music. That will be reproduced. 3025

An effort will be made to reproduce the execution of Buchanan, if he is executed, for scientific purposes. It has been ascertained that there is no legal obstacle in the way, but whether Governor Morton will give his consent is not yet known. Much advantage is claimed for the eidoloscope in scientific work.

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**Complainant's Exhibit P.**

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

	MOTION PICTURE PATENTS COM-	}
	PANY,	
	Complainant,	
	vs.	
3029	INDEPENDENT MOVING PICTURE	}
	COMPANY OF AMERICA,	
	Defendant.	

BENJAMIN BARKER,  
Examiner.

## COMPLAINANT'S EXHIBIT.

**Eastman Kodak Co. Bill Feb. 18, 1895.**

## COPY OF INVOICE.

Feb. 18, 1895.

3030 36785.

W. Latham,  
Hotel Bartholdi,  
Madison Sq., N. Y.

Cash .....		
12 Rolls 2 in. Transp. Film 25 ft. long	\$1.87½ per roll	22.50
	Exp. prepaid	.21

22.71

By cash Feby. 13, '95 22.50

.21

Nat. X Pd. Feb. 13, 1895.

**Complainant's Exhibit Q.**

3031

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS COM-  
PANY,

Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,

Defendant.

3032

BENJAMIN BARKER,  
Examiner.

## COMPLAINANT'S EXHIBIT.

**Eastman Kodak Co Bill of Apr. 5, 1895.**

## COPY OF INVOICE.

Apr. 5, 1895.

2646B.

3033

W. Latham,  
Hotel Bartholdi,  
N. Y. City.

.....		
192 ft. 2 in. Transp. Film	.07½	14.40
	Exp. Prepaid	.12
		<hr/> 14.52

Nat. X Pd. C. O. D.  
Duplicate.

3034

**Complainant's Exhibit R.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS COM-  
PANY,

Complainant,

vs.

3035

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,

Defendant.

BENJAMIN PARKER,  
Examiner.

## COMPLAINANT'S EXHIBIT.

**Eastman Kodak Co. Bill of Apr. 27,  
1895.**

## COPY OF INVOICE.

5101F.

3036

W. Latham, a/c.  
Hotel Bartholdi,  
N. Y. City.

.....  
10 Strips 2 in. Transp. Film 200 ft. each  
2,000 ft. at .07½ 150.00  
Apr. 24—By Cash 50.00

100.00

U. S. X. C. O. D.

**Complainant's Exhibit S.**

3037

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS Co.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,  
Defendant.

3038

BENJAMIN BARKER,  
Examiner.

## COMPLAINANT'S EXHIBIT.

**Eastman Letter**W. Latham, Esq.,  
New York City.

Dear Sir:—

Your favor of the 23rd is just at hand, 5 p. m. 3039  
We, however, received your telegrams during the day and have your directions to cut ten strips two hundred feet long and join them together, making two one thousand sheet strips. We have since telegraphed you for remittance on this order. You will appreciate the necessity of this, as this special film would be of no value to us, if for any reason you should decline to receive it. This will not delay the order, however, as we expect to receive your telegram and will cut the film to-morrow if your reply is satisfactory.

As you now seem practically prepared for business, will you not please give us the usual refer-

3040 ences as to responsibility so that future orders may not be delayed?

Referring again to the joining of the film, will say that these joints will necessarily cause a break in the continuity of the sensitized surface. The joint will be about  $1\frac{1}{2}$  in. long and this will not be sensitized. We cannot make any joint sufficiently solid on which there will not be a break in the sensitized surface. As to the thickness of the film for the four thousand feet order, there is a possibility of a misunderstanding as to this. Mr. Eastman handed writer immediately after your Mr.

3041 Latham's departure, a memorandum of the understanding with him and this states that the film is to be  $1/1000$  in. thicker than our regular film. As our regular film is  $3/1000$  in. thick, this practically agrees with your statement of the matter, but we thought it better to mention the directions as we have them.

The special order for four thousand sheets will probably be ready in four or five days, but the telegraphic order which will be made from our regular film should be ready for shipment Friday morning. This is as early as we can get it out, as cut rolls are always held over until the next morning to give a practical camera test of the film before shipment.

3042

Yours truly,

EASTMAN KODAK COMPANY,  
By MCINTYRE.

Your telegram asking "How much do you demand in advance" is rec'd, and we have replied "Amount of order one hundred and fifty dollars net"—Kindly telegraph if check is forwarded and we will go ahead with order.

**Complainant's Exhibit T.**

3043

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS Co.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
Co. OF AMERICA,  
Defendant.

In Equity,  
No. 5-167.

3044

**COMPLAINANT'S EXHIBIT.****Decision of Examiner of Interferences in Armat Interference.**

UNITED STATES PATENT OFFICE.

LATHAM

vs.

CASLER

vs.

ARMAT.

No. 18461.

3045

Apparatus for projecting on a screen pictures of moving objects.

Application of Latham filed June 1, 1896.

Application of Casler filed February 26, 1896.

Application of Armat filed February 19, 1896.

Mr. J. E. M. Bowen, attorney for Latham.

Messrs. E. M. Marble & Sons, attorneys for Casler.

Mr. Julian C. Dowell, attorney for Armat.

The issue in controversy is defined as follows:

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*Latham vs. Armat, Interference Decision.*

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"In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

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This interference, as originally declared, contained four parties. On motion of Armat, the senior party, judgment was rendered against Edward H. Amet for failure to take testimony within the time set. This judgment became final on December 6, 1897, and Amet accordingly ceased to be a party to the interference.

The other three parties, Latham, Casler and Armat, have all taken testimony and filed briefs in support of their respective cases.

Armat was the first to file his application, and the burden of proof therefore rests upon the other parties, Latham and Casler, to overcome the presumption of prior invention which inures to Armat's benefit by reason of his earlier filing date.

Woodville Latham, the first junior party, is the principal witness in his own behalf. Latham states that he was educated for a civil engineer, was en-

gaged in direction of the manufacture of ordnance and powder for the Confederate Army during the Civil War, was afterwards a railroad engineer, and next professor of chemistry and physics for five years at the University of West Virginia and then at the University of Mississippi. At present he is a chemist, residing in New York City.

Latham testifies that two of his sons, Gray Latham and Otway Latham, were engaged in New York during the summer of 1894, in the business of exhibiting pictures by the use of the Edison Kinetoscope. One of his sons came to him and asked him if he could not devise a machine for projecting the pictures upon a screen. Latham felt confident that he could and at once began to consider the matter. He states that:

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"It seemed to me that nothing was necessary for the projection of pictures of movement upon a screen but the combination of a magic lantern with an appliance similar to Edison's Kinetoscope for running the picture strip continuously across the optical axis; but I was aware that it would be necessary to provide pictures for such apparatus and I did not believe that pictures could be photographed clearly on a continuously running strip. Immediately, therefore, I began to consider what device might be best for arresting the movement of the film intermittently."

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He made drawings from time to time illustrative of his ideas and showed them to his sons and to others. These drawings were of a transient nature and are now lost or destroyed. Money was required to reduce Latham's ideas to a practical

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*Latham vs. Armat, Interference Decision.*

form, and it was not until November, 1894, that the necessary funds were secured. Latham at once hired a shop, purchased machinery and set a mechanic by the name of Lauste at work to produce a machine.

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It is unnecessary to review the efforts of Latham prior to January 1, 1895, for it appears clearly by his own testimony that it was not until about this date that he conceived of any "means for intermittently moving the film." If anything is well settled in the law of patents it is that no inventor can be allowed a date for his conception until he has in his mind the idea of a particular means. In the words of Robinson in his work on Patents, Sec. 376, *et seq.*:

"The conception of the invention consists in the complete performance of the mental part of the inventive act. \* \* \* All that remains to be accomplished, in order to perfect the art or instrument, belongs to the department of construction, not creation.

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"To perceive an existing want; to conceive that in some way it may be supplied; even to discover what attributes an article or operation must possess in order to relieve the want—neither of these acts results in an idea of means by which the want may be removed."

Now, while it appears that Latham had decided that an intermittent movement was necessary, it appears from his own testimony that he had not in mind any means for giving this intermittent movement until January 1, 1895, when the Geneva

stop movement was selected and ordered. Moreover, Latham tried prior to this date a different kind of means for giving an intermittent movement, which was devised by Dickson, and found it impractical.

Latham testifies that after some experiments a machine, later introduced in evidence as Latham Exhibit No. 12, was completed with the assistance of Lauste and one Kleinert and under the supervision of Otway Latham. The first picture was taken with the machine on the night of February 26, 1895, and a portion of the film is offered in evidence. Pictures were taken again with the machine in March and on May 4, 1895, and both of these pictures were subsequently exhibited on a screen to the public. Latham further states that this same machine could be and actually was employed by him in the month of January or February, or both, 1895, at 35 Frankfort Street, New York, to project pictures taken by it. Latham also states that a company known as the Lambda Company, was organized in December, 1894, to carry on the manufacture of this invention, and the machine, Exhibit No. 12, was turned over to this company. The Lambda Company, after a year's existence, sold out to a company called the Eidoloscope Company, and the machine then became the property of the latter company.

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R. A. Anthony, president of E. & H. T. Anthony & Company, the assignees of Latham's application, was called as a witness and produced the machine, Latham Exhibit No. 12, which he purchased during the taking of the testimony from Raff & Gammon, otherwise known as the Vitascope Company, into whose hands it had come. He gives so far as he is able a very satisfactory history of the machine.

Otway Latham was called as a witness in behalf of his father. He states that in the summer of 1894 he controlled certain rights in connection with the Edison kinetoscope, and that he and his associates were unable to accommodate the crowds desiring to see the pictures. His father then, in July or August, suggested making a machine that would enlarge pictures of this character so that more than one could view them at the same time. Otway Latham says that his father made some sketches at this time and later, but he does not remember just what they showed. He testifies as to the interesting of Dickson in the matter and as to the failure of the device proposed by Dickson for giving the intermittent movement to the film and the subsequent immediate adoption of the Geneva stop. He states that the work of constructing the machine, Latham Exhibit No. 12, was begun in October or November of 1894, and that the Geneva stop was put in about the first of January, 1895, and that pictures were photographed and projected in the same month. He later states that the machine was first used for photographing about February 26, 1895, and identifies the film, Latham Exhibit No. 2, as the picture taken at that time. He corroborates his father as to the subsequent taking of pictures with this machine early in May, 1895, and states that these pictures were exhibited in the shop at 35 Frankfort Street by means of the machine that photographed them, but does not say when.

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On cross-examination he reiterates his testimony that this machine was used for projecting pictures on a screen early in January, 1895, and soon after the Geneva stop was put in. He states that several subjects were used, possibly a girl dancing or a

boxing match, and that Lauste, Kleinert, his father, and Dickson were present at this or immediately subsequent trials. He states that the exhibit machine is the same now as it was then with the exception of the two reels upon which the films were rolled, and the focusing lamp and objective lens.

Grey Latham testifies to being one of those who exploited the kinetoscope in the Summer of 1894, and states that his father in July or August of that year suggested to him the possibility of projecting moving pictures on a screen. On several occasions during these months his father showed him pencil drawings of an arrangement which he said would both photograph and project moving objects, but he gave little or no attention to it, as he knew nothing of mechanics, and did not understand the drawings. He states further:

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"I remained in Boston almost continuously during the fall and winter of 1894 and 1895.

At some time in November, I think it was, while I was in New York on a visit and after we had raised money for the manufacture of photographic and projecting machines, and had opened a shop at 35 Frankfort Street, New York, and had been at work for some time, as I understood, on the ideas as set forth by Mr. Dickson and my father, I was told by my brother, Otway Latham, by my father, Woodville Latham, and by our mechanic, who was doing the work, that Dickson's idea had proved a failure and that the work thereafter would continue on the line laid down by and after the ideas of my father. I remained in New York only a few days at that time, and returned to Boston."

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*Latham vs. Armat, Interference Decision.*

In December he was informed by letter that work on the machine was progressing satisfactory, and that an assistant in the shop was needed. He then, in the latter part of December, 1894, sent Kleinert to New York. Grey Latham states also that he saw the machine in its completed state in New York in January, 1895, and he very clearly identifies the machine Latham Exhibit No. 12, as the one he saw. He personally first operated the machine for photographing pictures in February, 1895. As to the first use of the machine for projecting pictures he testifies:

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"Either in January, the later part, or the early part of February, I think, my brother and I in the presence of several others removed the back plate from the machine, Exhibit 12, and inserted an electric light and projected satisfactorily one of the kinetoscope pictures on a screen at 35 Frankfort Street, in room No. 35."

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Kleinert testifies that he was once employed as a foreman in the manufacture of the Edison kinetoscope, and that in the Fall of 1894, and up to the Sunday before Christmas of that year he was in the employ of Grey Latham in Boston. On the date last mentioned he went to New York and agreed to work for Woodville and Otway Latham. He began work at once on a machine for taking photographs, and had as a fellow-workman Lauste. At the time he came Lauste was working on a device to attain a stop movement. He states that Lauste in his work followed out instructions given to him by Woodville Latham and Otway Latham. The stop movement on which Lauste was working was found to cause too much jar, and the two

Lathams, Lauste, and Kleinert had a conference. "Each one was asked for some suggestion, which was freely made by every one, and as a practical mechanic myself suggested a broken gearing. We talked that over for quite a while. After looking over different catalogues, I ordered the gearing I thought would answer the purpose." Kleinert says that he ordered the gear or Geneva stop early in January, 1895, and after some further experiment the machine was completed inside of a month. The first photograph was taken on the night of February 26, 1895, and he identifies Exhibit No. 2 as the film taken at that time. He also identifies the machine, Latham's Exhibit No. 12, as the machine made by his assistance and recognizes his own workmanship.

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The testimony on behalf of the party Latham, as outlined briefly above, appears to establish that Latham conceived and reduced to practice the invention which is embodied in Exhibit No. 12 in January, 1895, and no earlier. Casler at the conclusion of his testimony put upon the stand Lauste, who appears to have been brought from Europe to testify in this case, and endeavored to prove that Latham had made no invention at all, and that Lauste was in fact the inventor of the matter embodied in the said exhibited machine. The examiner is not favorably impressed with the character of the testimony given by this man Lauste, the former employee of Latham and the present employee of the Mutoscope Company, of which Casler is a director. It contains many self-contradictions and incredible statements, which it is hoped are due to the witness's imperfect knowledge of English. However, Lauste by his own testimony was employed and paid by Latham to make this

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3071 machine, and even if he as a skillful mechanic did suggest much that is embodied in the machine it can not detract from Latham's right to be considered the real inventor under the well-settled principles of law governing the relationship of employer and employee. Latham in rebuttal took the stand himself again and denied *in toto* all of Lauste's statements affecting the question of inventorship, which did not agree with the testimony of the previous witnesses. This testimony of Latham is rather forceful in character and he was injudicious in his language, but it is entitled to weight and in connection with the other testimony nullifies the evidence of Lauste.

3072 The only question which remains to be determined in Latham's case is whether or not the Latham Exhibit No. 12 is an embodiment of the issue of this interference. As to this question there is controversy. This machine is full-sized and well made out of the proper materials. It is apparent from the testimony that the exhibit machine was designed and made primarily for the purpose of taking pictures and not for projecting pictures on a screen. It is claimed, however, that the machine is adapted for the latter use, and that the testimony in fact shows that it was so used. The machine as it stands to-day is not in condition for exhibiting pictures, but is arranged to be used as a camera, which is the use to which it has been put almost entirely. It now contains a circular revolving shutter with but two small peripheral apertures, which renders it impossible to make the interval of pause and illumination exceed the interval of motion of the film. But the issue does not demand that the machine shall contain a shutter, and the testimony shows that a shutter is not an essen-

tial element by any means of a picture-exhibiting apparatus. If this shutter should be removed, and no mechanical reason exists to prevent its removal, the machine becomes at once an embodiment of every element of the issue. The mechanism which moves the film acts quickly and then allows that part of the film at the point of exposure to remain stationary for a much longer interval of time. Not only does the machine appear to be an embodiment of the issue, but the testimony shows that it was, once at least, used to project pictures. Furthermore, it is well settled that "the inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not" (*Roberts vs. Ryer*, 91 U. S., 150; *Milleret et al. vs. Eagle Mfg. Co.*, C. D. 1894, 147).

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It is found, therefore, that Latham is entitled to rely upon this machine as a reduction to practice of the invention of the issue.

It is noted that the issue, which is for a combination of the elements of a machine, includes as a positive element "a picture-carrying strip or film." It is not seen how this is any more an element of the picture-exhibiting apparatus than the log is of the saw-mill or the paper of the printing press, referred to by Mr. Justice Brown in *Morgan Envelope Co. vs. Albany Perforated Wrapping Paper Co.* 67 O. G., 271. But even if it can be considered an element of the machine, the testimony fairly shows that such a film was used by Latham in the test made in January, 1895.

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The case presented on behalf of the party Casler is easily disposed of to the mind of the examiner. Casler alleges in his preliminary statement that he conceived the invention about December 12, 1894,

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*Latham vs. Armat, Interference Decision.*

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and about March 1, 1895, he completed the only machine which he has built. Admitting that these facts are proven by the evidence, the testimony of Casler himself shows that this machine which is produced in evidence "was not intended when built as a machine for projecting photographs or pictures of moving objects," and that it was not until about November 1, 1895, that it was fitted up so that it could be used for such a purpose. The machine as it appears in evidence, is clearly and unmistakably a camera. It is so constructed that light cannot be made to pass in a right line through the machine to project the picture upon the screen. It is itself a full corroboration of Casler's testimony that it was not originally designed for anything other than a camera.

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If "Casler's first machine" can be relied upon at all as a reduction to practice of the issue, and there is considerable doubt in the mind of the examiner as to his point, it certainly can be of no avail for this purpose until November, 1895, for it was not until then that it was adapted in any way for projecting. Casler testifies that at this date pegs were placed in the machine, by means of which the course of the film was diverted, and that by arranging a mirror and other devices the machine was adapted for projecting. Until these changes were made, and Casler himself says that they were necessary changes, the machine was nothing but a camera and could not be used for projecting. If, therefore, Casler's case be put in the strongest possible light he cannot prevail even as against Latham. Granting that he conceived the invention on December 12, 1894, and that he built the machine in evidence by March 1, 1895, and modified it in November, 1895, so as to embody the issue, he

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would, as against Latham, be the first to conceive and the last to reduce to practice, and would be obliged to show diligence; but from March to November, 1895, he was clearly not diligent, and offers no excuse therefor. The examiner is further of the opinion that Casler never conceived the invention of this issue prior to November, 1895, when he decided to and did make the changes in his exhibit machine. Other questions in regard to Casler's case have been raised which it seems unnecessary to notice because of the view here taken. The conduct of Casler in putting the witness Lauste upon the stand and in endeavoring to prove that Lauste was the inventor of the Latham machine at the dates claimed by Latham goes to show that Casler does not now consider himself to be the first inventor.

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The testimony on behalf of Armat, the senior party, is comparatively brief, and it is unnecessary to review it at all in detail.

Although Armat has alleged a conception of the invention in November, 1894, in his preliminary statement, he has utterly failed to establish this fact by his own proofs. On the contrary, he admits in his own testimony that he did not conceive the invention as now embodied in the Armat's Exhibit Armat Machine, which contains the issue, until September, 1895. It appears from Armat's testimony that this machine was constructed and shipped to Atlanta, Georgia, lacking a very essential element of the issue, namely, "mechanism for feeding the film so as to provide slack therein between the same and said tension device;" that shortly after the arrival of the machine in Atlanta an additional shaft and toothed drum, together with iron pulleys, leather belt, and supporting

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3082 Latham vs. Armat, Interference Decision.

standards, were added to the machine for this very purpose. These facts are admitted by counsel for Armat in his brief. Armat, hence, did not conceive or reduce to practice till long after the dates awarded to Latham.

Judgment of priority of invention is accordingly awarded Woodville Latham. Limit of appeal from this decision will expire July 5, 1899.

WALTER JOHNSON,  
Examiner of Interferences.

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June 14, 1899.

Endorsed:—Intf. No. 18461; paper No. 93—Latham vs. Casler vs. Armat—Decision of priority in favor of Latham, June 14, 1899—Recorded, vol. 62, page 145.

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**Defendants' Exhibit No. 1.**

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Mfr's		Special
Serial No.	<b>SIMPLEX</b>	License No.
3557		3666

Made by

**THE PRECISION MACHINE COMPANY**

Patented.

No. 576,185, March 2, 1897.  
 No. 580,749, April 13, 1897.  
 No. 586,953, July 20, 1897.  
 No. 673,329, April 30, 1901.  
 No. 673,992, May 14, 1901.  
 No. 707,934, August 26, 1902.  
 No. 722,382, March 10, 1903.

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The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and re-issued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company, and complied with by the user while it is in use, and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine.

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**MOTION PICTURE PATENTS COMPANY,**

New York, N. Y., U. S. A.

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**Defendants' Exhibit No. 2.****LICENSE AGREEMENT.**

(a) THIS AGREEMENT, made this 20th day of June, 1912, by and between the MOTION PICTURE PATENTS COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and having an office in said State, party of the first part (hereinafter referred to as the "LICENSOR"), and

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The Precision Machine Company, Inc., a corporation organized and existing under the laws of the State of New York, and having an office and principal place of business in the Borough of Manhattan, City of New York, in said State, party of the second part (hereinafter referred to as the "LICENSEE") ;

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(b) WHEREAS, the Licensor represents that it is the owner of the entire right, title and interest in and to Letters Patent of the United States:

No. 578,185, dated March 2, 1897, for Vitascope, granted to Thomas Armat ;

No. 580,749, dated April 13, 1897, for Vitascope, granted to Thomas Armat ;

No. 586,953, dated July 20, 1897, for Phantoscope, granted to Charles F. Jenkins and Thomas Armat ;

No. 588,916, dated August 24, 1897, for Kinetoscope, granted to Charles M. Campbell as the assignee of Willard G. Steward and Ellis F. Frost ;

No. 673,329, dated April 30, 1901, for Kinetoscope, granted to the American Vitagraph Company as the assignee of Albert E. Smith ;

No. 673,992, dated May 14, 1901, for Vitascope, granted to Thomas Armat ;

*Defendants' Exhibit No. 2.*

3223

- No. 707,934, dated August 26, 1902, for Projecting Kinetoscope, granted E. & H. T. Anthony & Co. as assignees of Woodville Latham;
- No. 722,382, dated March 10, 1903, for Animated Picture apparatus, granted to American Mutoscope & Biograph Company as the assignee of John A. Pross;
- No. 744,251, dated November 17, 1903, for Kinetoscope, granted Albert E. Smith;
- No. 770,937, dated September 27, for Kinetoscope, granted The Vitagraph Company of America as the assignee of Albert E. Smith;
- No. 771,280, dated October 4, 1904, for Winding-Reel, granted Albert E. Smith;
- No. 785,205, dated March 21, 1905, for Flame-Shield for Kinetoscope, granted The Vitagraph Company of America as the assignee of William Ellwood; and
- No. 785,237, dated March 21, 1905, for Film-Holder for Kinetoscopes, granted The Vitagraph Company of America as the assignee of Albert E. Smith;

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all of which said Letters Patent relate to improvements in the motion picture art, and that there are no outstanding licenses, shop rights or other rights under said Letters Patent, or either of them, except a license for Parlor Kinetoscopes granted The Karmata Company, of Washington, D. C., under Letters Patent Nos. 578,185, 580,749, 586,953 and 673,992, and certain alleged licenses under U. S. Letters Patent No. 586,953, which are in dispute, claimed to be owned by the Edison Manufacturing Company, the American Graphophone Company of Washington, D. C., and S. Lubin, of Philadelphia, Pa.; and excepting a license granted by the American Mutoscope & Biograph Company to

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the firm of Marvin and Casler to manufacture and sell cameras and exhibiting or projecting machines under Letters Patent owned by it (some of which are hereinbefore referred to) for use in foreign countries only, and excepting certain licenses granted by the Armat Moving Picture Company to the American Mutoscope & Biograph Company under Letters Patent Nos. 578,185, 580,749, 586,953, 588,916 and 673,992, and by the latter Company to the former Company under Patents Nos. 707,934 and 722,382, which licenses are, however, by agreement between said parties, suspended and are not to be acted upon until the Licensor becomes bankrupt, ceases doing business or shall be dissolved voluntarily or otherwise, or its Charter shall be repealed; and

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(c) WHEREAS, the Licensor further represents that it is the owner of the entire right, title and interest in and to reissued Letters Patent of the United States numbered 12,192, dated January 12, 1904, the original Letters Patent of which were numbered 589,168, and dated August 31, 1897, and that it has granted licenses under the said reissued

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Letters Patent only to the following named persons, firms or corporations: American Mutoscope & Biograph Company of New York City; Edison Manufacturing Company of Orange, N. J.; Essanay Company of Chicago, Illinois; Kalem Company of New York City; George Kleine of Chicago, Illinois; Lubin Manufacturing Company of Philadelphia, Pa.; Pathe Freres of New York City; Selig Polyscope Company of Chicago, Illinois; The Vitagraph Company of America, of New York City; and that all of the said persons, firms or corporations have covenanted and agreed to lease only

and not sell in the United States, its territories and possessions, except its insular possessions and Alaska, (hereinafter referred to as the "lease territory aforesaid") motion picture films manufactured or imported by them, of a width greater than approximately one inch (1 in.), and under the conditions and restrictions that the said films shall be used only on exhibiting or projecting machines licensed by the Licensor under United States Letters Patent owned by the Licensor; and

(d) WHEREAS, the Licensee is engaged in the manufacture and sale of motion picture exhibiting and projecting machines, and relying upon the representations of the Licensor and induced thereby, desires to obtain from the Licensor a license under the said United States Letters Patent; 3230

(e) NOW, THEREFORE, the parties hereto, for and in consideration of the sum of one dollar to each in hand paid by the other, and for other good and valuable considerations, from each to the other moving, receipt of which is hereby acknowledged, have agreed as follows: 3231

(1) The Licensor hereby grants to the Licensee for the term and subject to the covenants, conditions and stipulations hereinafter expressed, the right and license for the United States, its territories and possessions, to manufacture and sell motion picture exhibiting or projecting machines embodying one or more of the inventions described and claimed in the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205, and 785,237. The license hereby granted is personal to the Licensee, and in

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the event of the permanent discontinuance or retirement from business of the Licensee for a period of six consecutive months, the License hereby granted shall be immediately terminated.

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(2) The Licensor, for itself, its successors, assigns and legal representatives, hereby releases, acquits and discharges the Licensee from any and all claims, demands and liability for profits and damages because of any infringement by the Licensee of one or more of the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, or use by the Licensee of the inventions covered thereby.

(3) The Licensee hereby recognizes and admits the validity of each and all of the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, and the Licensee agrees not to contest or question the same during the continuance of this agreement.

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(4) The Licensee covenants and agrees that on all motion picture exhibiting or projecting machines containing one or more of the inventions described and claimed in the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, made in the United States, its territories and possessions, by the Licensee and sold after the license hereby granted shall take effect and during the continuance of this agreement, the Licensee will pay royalties as follows:

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On each such machine capable of exhibiting or projecting by transmitted light, motion pictures on film of a width greater than approximately one inch (1 in.), a royalty of five dollars (\$5.00).

On each such machine not capable of exhibiting or projecting by transmitted light, motion pictures on film of width greater than approximately one inch (1 in.), a royalty of three per cent. (3%) of the net retail selling price of such machines.

On each such machine capable of exhibiting or projecting by reflected light, motion pictures on film of any width, but not capable of exhibiting or projecting the same by transmitted light, a royalty of three per cent. (3%) of the net retail selling price of such machines.

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It is understood and agreed by and between the Licensor and the Licensee that the expression "motion picture exhibiting or projecting machine," as used hereinbefore or hereinafter, includes motion picture mechanisms or "heads" for such exhibiting or projecting machines, but not any repair parts or portions of such motion picture mechanisms or "heads."

The Licensee further covenants and agrees that the Licensee will, within fifteen (15) days after the last days of the months of November, February, May and August in each year, after this agreement takes effect, and during its continuance, submit a statement in writing, signed by the proper officer of the Licensee, and sworn to if requested by the Licensor, showing the number of exhibiting or projecting machines of each of the classes provided for in this paragraph, embodying one or more of the inventions described and claimed in the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934,

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*Defendants' Exhibit No. 2.*

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722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, sold by the Licensee during the three months ending with the last days of the said months, and at the same time pay the royalties due thereon. The first such statement and payment, however, shall be only for the period between February 1, 1909, and February 28, 1909. The Licensee further agrees to keep accurate books of account and to permit the Licensor to determine, through Messrs. Price, Waterhouse & Company, or any other reputable chartered accountants to be agreed upon by the parties hereto, the number of such exhibiting or projecting machines sold by the Licensee while this agreement is in effect, if the Licensor should so desire.

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(5) The Licensee further covenants and agrees that each and every motion picture exhibiting or projecting machine capable of exhibiting or projecting by transmitted light, motion pictures on a film of a width greater than approximately one inch (1 in.), and embodying one or more of the inventions described and claimed in the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, made in the United States, its territories or possessions by the Licensee, shall be sold by the Licensee, except when sold for export, under the restriction and condition that such exhibiting or projecting machines shall be used solely for exhibiting or projecting motion pictures containing the inventions of reissued Letters Patent No. 12,192, leased by a licensee of the Licensor while it owns said patents, and upon other terms to be fixed by the Licensor and complied with by the user while the said machine is in use and while the Licensor owns

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*Defendants' Exhibit No. 2.*

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said patents (which other terms shall only be the payment of a royalty or rental to the Licensor while in use). The Licensee further covenants and agrees that the Licensee will attach in a conspicuous place to each and every such exhibiting or projecting machine of the Licensee's manufacture, sold by the Licensee, except for export, after the date hereof, a plate showing plainly not only the dates of the Letters Patent under which the said machine is licensed, but also the following words and figures:

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Serial No.

PATENTED

No.

The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of reissued patent No. 12,192, leased by a licensee of the MOTION PICTURE PATENTS COMPANY, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the MOTION PICTURE PATENTS COMPANY and complied with by the user while it is in use and while the MOTION PICTURE PATENTS COMPANY owns said patents. The removal or defacement of this plate terminates the right to use this machine.

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(6) The Licensee further covenants and agrees that each and every motion picture exhibiting or projecting machine not capable of exhibiting or projecting by transmitted light, motion pictures on a film of a width greater than approximately one inch (1 in.), or capable of exhibiting or projecting motion pictures on film of any width, but

*Defendants' Exhibit No. 2.*

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only by reflected light, and embodying one or more of the inventions described and claimed in the said Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, and made in the United States, its territories and possessions, by the Licensee, shall be sold by the Licensee, except when sold for export, under the restriction and condition that the said exhibiting or projecting machine shall be used in exhibiting or projecting motion pictures only in places to which no admission fee is charged. The Licensee further covenants and agrees that the Licensee will attach in a conspicuous place to each and every such exhibiting or projecting machine of the Licensee's manufacture, sold by the Licensee, except for export, after the date hereof, a plate showing plainly not only the dates of the Letters Patent under which the said machine is licensed, but also the following words and figures:

PATENTED

No.

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The sale and purchase of this machine gives only the right to use it so long as this plate is not removed or defaced and in places to which no admission fee is charged.

(7) The Licensee further covenants and agrees that to each and every motion picture exhibiting or projecting machine of any kind, embodying one or more of the inventions described and claimed in said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, and made in the United States, its ter-

*Defendants' Exhibit No. 2.*

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ritories and possessions by the Licensee, when sold *bona fide* for export, there shall be attached a plate showing plainly not only the dates of the Letters Patent under which the said machine is licensed, but also the following words and figures:

PATENTED

No.

Not licensed for use in the United States, its territories and possessions (except its insular possessions and Alaska).

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It is understood by and between the parties hereto that by "export sales" is meant all sales for delivery outside of the "lease territory aforesaid," when the machine, addressed to the purchaser, agent, or consignee, is delivered to the vessel or to a transportation company for transportation outside of the said "lease territory aforesaid," and not otherwise.

(8) The Licensee further covenants and agrees that the Licensee will not, after this agreement takes effect, make or sell repair parts for motion picture exhibiting or projecting machines which have been manufactured or imported and sold by any other person, firm or corporation, who or which is licensed by the Licensor to manufacture or import and sell motion picture exhibiting or projecting machines under any or all of the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237.

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(9) The Licensee further covenants and agrees that the Licensee will not sell any exhibiting or projecting machine at less than the Licensee's list

*Defendants' Exhibit No. 2.*

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price for such machine, except to jobbers, and to other persons, firms and corporations for the purpose of resale, and that the Licensee will require such jobbers and other persons, firms and corporations, to sell such machines at not less than the Licensee's list price for such machine. Nothing in this paragraph shall prohibit, however, the allowance of two per cent. (2%) discount from list price for ten days cash payments.

3251 (10) The Licensee further covenants and agrees that the Licensee will not sell, after May 1, 1909, during the continuance of this agreement, any exhibiting or projecting machine capable of exhibiting or projecting by transmitted light, motion pictures on film of a width greater than approximately one inch (1 in.), at a less list price than One Hundred and Fifty Dollars (\$150), which list price may include the machine head, stereopticon attachment, film magazines, lamp house, arc lamp, rheostat, switch and switch box, and attaching cords, except, however, that for the last five named items may be substituted a gas burner and gas making outfit. It is further understood and agreed that such complete machines may be sold between 3252 February 1, 1909, and May 1, 1909, at a less list price than One Hundred and Fifty Dollars (\$150), but only to persons, firms or corporations not engaged in the business of renting motion picture films, and not for use in any permanent or fixed place of exhibition.

(11) It is further mutually covenanted and agreed by and between the Licensor and the Licensee, that the Licensor may grant other licenses to manufacture or import and sell motion picture exhibiting or projecting machines, under any or

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all of the said United States Letters Patent Nos. 578,185, 580,749, 586,953, 588,916, 673,329, 673,992, 707,934, 722,382, 744,251, 770,937, 771,280, 785,205 and 785,237, said licenses to be in writing, and if any of said licenses to an additional licensee of the Licensor contains terms, conditions or stipulations more favorable to the additional licensee than the terms, conditions or stipulations of this agreement (except to the Biograph Company of New York City, and to the Armat Moving Picture Company of Washington, D. C., who are to pay no royalties on any exhibiting or projecting machines embodying any or all of the inventions described and claimed in the aforesaid Letters Patent, and to the Vitagraph Company of America of New York City, the royalty rates to which under the aforesaid Letters Patent are to be only four-fifths ( $\frac{4}{5}$ ) of these provided for herein, and to Thomas A. Edison, Inc., of Orange, N. J., and to the Marvin & Casler Company of Canastota, N. Y., neither of which is to pay any royalties under the aforesaid Letters Patent on any exhibiting or projecting machines sold bona fide for export) then the Licensor will upon demand of the Licensee convey to the Licensee terms, conditions and stipulations similar to those conveyed to said additional Licensee.

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(12) It is mutually covenanted and agreed by and between the Licensor and Licensee that, unless sooner terminated, as hereinbefore and herein-after provided, this agreement, and the license granted thereby, shall take effect on June 20, 1912, and shall continue until June 20, 1913, but that the Licensee may renew this agreement and license thereafter from year to year upon the same terms,

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conditions and stipulations as herein provided, by giving notice to the Licensor on or before the 20th day of March in each year, beginning with the year 1913, of the Licensee's election to so renew this agreement and license and upon the giving of each such notice this agreement and the license thereby granted shall be considered and treated by the Licensor and Licensee as renewed for the period of one year, beginning June 20th of the year following such notice, and such notice and renewal may be given and made by the Licensee during the life or lives of each or all of the patents under which the Licensee is hereby licensed.

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In case, however, that the Licensor should become bankrupt, cease doing business, or should be dissolved, voluntarily or otherwise, or its Charter should be repealed, then, on the happening of either such events, this agreement and the agreements made with the additional licensees hereinbefore provided for, that are then in force, shall forthwith terminate and be at an end.

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(13) It is further mutually covenanted and agreed by and between the Licensor and Licensee, that if, during said original term or during any such renewal period, either party should, knowingly or through gross neglect or carelessness, be guilty of a breach, violation or non-performance of its covenants, conditions and stipulations, resulting in substantial injury to the other party, and should, for the period of forty (40) days after notice thereof from the other party persist therein or fail to correct, repair or remedy the same, then and in such case the party aggrieved may terminate this agreement by giving notice in writing to the guilty party of its intention so to do. It is, however, mutually covenanted and agreed by and between

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the Licensor and Licensee that if the guilty party should correct, repair or remedy such breach, violation or non-performance of its covenants, conditions and stipulations within the said period of forty (40) days after such notice, and should thereafter knowingly or through gross neglect or carelessness be guilty of a second breach, violation, or non-performance of its covenants, conditions and stipulations, resulting in substantial injury to the other party, then, and in such case, the party aggrieved may terminate this agreement by giving thirty (30) days' notice in writing to the guilty party of its intention so to do. Such termination of the agreement, however, shall not prejudice either party hereto in the recovery of damages because of any such breach, violation or non-performance by the other party hereto.

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(14) All notices provided for in this agreement, shall be in writing and shall be given by delivering the same to the Licensor or Licensee, as the case may be, or by depositing such notices, postage prepaid, in any post-office of the United States, in a sealed envelope directed to the Licensor or Licensee, as the case may be, at its last known post-office address, to be forwarded by registered mail.

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(15) It is mutually covenanted and agreed by and between the Licensor and Licensee that after notice of the termination of this agreement and the license granted thereby by either party, as provided for in Paragraph 13 of this agreement, and after the same have been terminated, no matter what the cause or manner of termination may be, neither this license agreement, nor the fact that the Licensee has entered into or acted under it,

*Defendants' Exhibit No. 2.*

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shall be used in any manner, directly or indirectly, by or for the Licensor, its successors, assigns or legal representatives or by or for others with its or their consent or permission against the Licensee, or the Licensee's successors or legal representatives, in any litigation, controversy or proceeding involving the Licensee, or them, or any other persons, firms or corporations, or in any other way, it being understood and agreed that upon such termination the positions and rights of the Licensor and Licensee shall be the same as if this agreement had not been made; *provided, however*, that the rights of neither party shall be prejudiced by such termination in the recovery of damages for any breach or other violation of this agreement by the other occurring prior to such termination.

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IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed by their officers duly authorized to perform these acts, the day and year first above written.

MOTION PICTURE PATENTS COMPANY,

By H. N. MARVIN,

President.

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(Seal, Motion Picture Patents Company.)

Attest:

WM. PELZER,

Secretary.

THE PRECISION MACHINE CO., INC.,

By EDWIN S. PORTER.

Attest:

F. B. CANNOCK,

Secretary.

(Seal, The Precision Machine Company, Inc.)

**Defendants' Exhibit No. 4.**

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IN THE  
DISTRICT COURT OF THE UNITED STATES,  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA.  
SITTING IN EQUITY.

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UNITED STATES

vs.

MOTION PICTURE PATENTS COM-  
PANY, et al.

---

October Sessions,  
1914. No. 889.  
Petition Under  
Anti-Trust Act.

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SUR TRIAL HEARING ON PETITION, AN-  
SWERS AND PROOFS.

(Filed October 1, 1915)

DICKINSON, J.

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A petition was filed in this case under the Act of July 2, 1890, averring the combination of the defendants to accomplish an unlawful restraint of trade and consequent obstruction of the free flow of commerce in interstate transactions, in the sale of positive motion picture films and other necessary accessories of the motion picture art. The prayer is that a stop be put, by the power of the law, to the practices charged to be illegal.

The record is of such bulk, and the discussion has taken such a wide range and has with such thoroughness dealt with all possible phases of the

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case, that to even outline, with anything like adequacy, all the considerations involved in its decision, would extend an opinion beyond manageable limits.

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The present discussion is therefore limited to two questions (and largely to one of these) which give us the bearing points upon which the whole case turns. This restriction does not imply the slighting of any feature of the arguments, so well worthy of the fullest attention, which have been addressed to us, because there is substantial accord in the thought that with these questions eliminated the defence has failed. This feature will, however, be adverted to later.

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At the risk of being open to the criticism of its being wholly academic, a start may be made with a few general observations. The beginnings of this controversy are found in the ages-long struggle "to secure the blessings of liberty," to obtain which is stated to be one of the objects of our Constitution. There is deep-grained in human nature the impulse to influence, and, so far as it can be done, control the actions of others. It is too much to expect that this control, when secured, will always be exerted for altruistic ends. Out of this condition has arisen the need of a power of government to check the restraints which the strong would otherwise impose upon those whom they could control. Power and efficiency, however, are possessed in insensible gradation, and there is a right to the liberty of its full, fair exercise. There would be no real gain, in securing to some, freedom from extra-legal control, by imposing upon all, unfair and unreasonable restraint through an unfair and unwise administration of the law.

The liberty spoken of in our Constitution had more direct reference to this latter freedom from

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the "undue and unreasonable" exactions of constituted rulers. In the cycle of human efforts, we have come back to the needs which moved men into constituting rulers over themselves, and the power of the law has been invoked for protection against, what are declared to be, evil practices. The particular phase of liberty, with which this law concerns itself, is the freedom or free flow of commerce. It is based upon the right of every individual to choose his own calling in life and to follow the trade of his choice unhampered by any undue and unfair interference from others. It secures this "blessing of liberty" to all by making it unlawful for any to conspire to bring about "restraint of trade or commerce." This is the genesis and motive of the Act of July 2, 1890. It seeks (within constitutional limitations) to reach this end by declaring all such conspiracies to be criminal, and places under the ban of its condemnation all such attempts "to monopolize any part of trade or commerce." Its meaning has been declared in as broad and clean a sweep of language as could well be employed, and has been interpreted for us in a series of opinions which render further comment worse than vain. There are now more than a round dozen of these decisions, in which can be found the rule to be applied to the facts of the instant case.

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The full text of the complaint appears in the record and is too lengthy for quotation.

The gravamen of the offence may be gathered from the general summary that it is a conspiracy to drive from the field all other traders in the things which make possible the practice of the motion picture art and to monopolize to themselves that trade and through this the practice of the art itself.

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This latter feature justifies the interpolation into the discussion, of a preliminary question which lies at the threshold of the proceedings. The defence asserts the real charge to be that of an effort to control the motion picture business. This is asserted to be the business of dramatic representation and dramatic representation to be the practice of an art. The control, with the seeking of which the defendants are charged, is therefore the control of an art and not of trade or of anything which is the subject of commerce or can be brought

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within the laws relating thereto.

It has been settled by the decisions, under the earlier copyright laws, that the copyright of a dramatization covered a photo-play presentation of the same subject. This was based upon the recognition of, what every observer experiences, the similitude, if not identity, of the impressions received from seeing a photo-play and from the same play acted out by actors living and moving before his eyes. The photo-play business may therefore be well said to bear the same relation to dramatic art which the theatrical business does.

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The latter has not, however, the same relation to trade and commerce. The moving picture business, as an entirety, is made up of the presentations, to which the public is invited, and of a trade in other things, which make this final display possible. If it is a photo-play, it has, of course, the same basis of the labors of the author and the art of the actor as has the acted play. The spectator of the play sees the actors acting out the play. That which the spectator of the photo-play thinks he sees is an illusion. He thinks he sees, for instance, a man moving (or a picture of it), and, in one sense, he does because such is his mental impres-

sion of what is before him. This illusion is produced by projecting upon a screen, in rapid succession, enlarged reproductions of a series of consecutively quickly taken photographs of a man as he is moving. There must be, therefore, in the motion picture business the use of all these additional accessories, from the screen back to the raw film and the camera, as part of the apparatus for the production of a photo-play.

One of these essential things in the motion picture business is the positive motion picture film or reel, and the charge made against these defendants is that whatever may have been their final purpose with respect to the control of the art, what they combined to do and have done, is to restrain trade or commerce in these films, which are articles of trade and the subject of large interstate transactions, in which the defendants had part. The latter fact is admitted. It is evident that whoever controls the films, referred to, controls the motion picture business, but the point, with which we are now concerned, is that interstate trade in these films is within the statute.

The next branch of the defence, which presents itself for analysis and discussion, is that based upon the patent rights of the Motion Picture Patents Co. The plea is, in legal effect and in practical acknowledgment, one in confession and avoidance, for there is, as already stated, a substantial (although not formal) admission that, with this patent-right ownership out of the case, plaintiff should have the relief prayed.

The importance of the question thus raised cannot well be overestimated. The eulogy which counsel have bestowed upon our patent law system springs from real feeling and is not only a beauti-

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ful but doubtless a deserved tribute to its merits, and their eloquent portrayal of the benefits which have flowed from it is as true as it is impressive. It is easy to keep in sympathetic touch with them in the first step in their argument and to accept the proposition that the Anti-Trust Act did not work a repeal of the patent laws. This must be accepted on general principles, even were its supports not buttressed by the cases to which we have been referred. That their validity is not open to question in a collateral proceeding, and is to be assumed in this inquiry, must also be conceded. Prima facie they are and must be taken to be valid and to be for what the claims allowed by the Patent Office show.

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A little space may now be devoted to the consideration of what a patent right is, in order that we may understand the true value of this part of the defence. As has been well said, the patent laws do not confer any right to make, use or vend the subject matter of an invention. This is the natural right of the inventor. What the patent law does do, for one thing is to take away, for a limited time, from all others than the patentee, or his assigns, that which would otherwise have belonged to them also, the right to make, use or vend the patented article. Another thing it does, is to proffer to the patentee, the aid of the law in enforcing this prohibition upon others. The latter is really the right given. It is the right to a remedy. It is, as it is sometimes phrased, a proprietary right. There is also the idea of property of a special kind which has all the general characteristics of other kinds of property. The ownership of a patent, as the ownership of any form of property, may confer a power upon the proprietor

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which he otherwise might not have been able to wield. It has its peculiarities, as other kinds of property have, and certain consequences flow from this. To one of these we will later refer, but the point now presented is that a patent as property must have the same relations to the Act of 1890 as would any other kind of property. In view of this, it is a little difficult to grasp the thought that, in this broad aspect, patents are not subjected to the provisions of this Act just as is any other species of property. We see no escape from the conclusion that they are. Just here, however, comes in a difference born of one of the peculiarities to which reference was made.

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The Act of 1890, in its first section, declares combinations in restraint of trade to be illegal. By its second section, it condemns monopoly. The opinions in *Standard Oil Co. and Keystone Watch Co.* and in *Patterson vs. U. S.* make clear the purpose and scope of the two sections. The condemnation is visited both upon the means and the end, forbidden by law. A peculiarity of the rights of the owner of a patent, as distinguished from other property, is this: Each has the right to sell that which is his, but the owner of the patent has the exclusive right to sell his patented article. This is, in a very substantial sense, a monopoly. It must be, however, that the monopoly here meant is not the monopoly condemned by the Act of 1890. To hold otherwise would clearly be, as counsel for defendants urge, a logical absurdity, because there can be no such thing as restraint in a trade which has no existence, and a monopoly created by law in pursuance of a policy of the law, cannot be said to result from such restraint. To transfer a phrase from the opinion of Judge Coch-

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ran, in *Patterson vs. U. S.*, which was directed to something else but which is applicable here, "there can be no monopolizing in the legal and accurate sense where there can be no common occupation." The right to sell carries with it the right to withhold from sale, or to part with the possession without parting with the ownership. It also confers the right to impose reasonable and legal conditions of bailment or sale "restricting the terms upon which the (patented) article may be used and the price to be demanded therefor. All these propositions are clear and have been expressly held to be the law. *Bement vs. National Co.*, 186 U. S., 70 and 72, and *Standard Co. vs. U. S.*, 226 U. S., 20 and 40. The limitation that the terms must be legal should however not be lost sight of. An effort, for instance, after a sale to impose a sale price condition which will follow the article through successive sales, will not be upheld.

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We have, therefore, to determine the limits of a right and a wrong which seem to overlap each other. It is the right of a patentee, through having the exclusive sale of the patented article, to control, and in that sense, to monopolize the trade in it. It is wrong by any illegal restraint of trade to monopolize it or any part of it. On the one hand, it cannot have been intended to make it unlawful to acquire that, the right to which, the law has conferred. On the other hand (as already observed), it cannot be that the grant of a patent right confers a license to do that which the law condemns. The solution of the problem is to be sought by finding the special field of operation of each of these laws. There is a field of trade, the sole occupancy of which may be in a patentee. Here he is supreme, and the keeper of the gate

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of entrance. There is another field which is in the common occupancy of all. Where the law has given the whole field to a patentee with the express right of exclusion of others and the use of the power of the law to enforce the exclusion, it is unthinkable that such exclusion is an illegal restraint of trade. Where the field, however, is open to all, competition for trade is likened to a race in which all may enter, but in which there must be no unfair jostling or hampering of others. Each one is free to exert all his powers and distance, if he can, all competitors, and win all the prizes, but he must run fairly and accord to others a like freedom. If he possesses a patented device which will aid him in the race, he may use it, as he may use any other form of property, but he must put it only to its proper use, and if he uses it as a weapon to disable a rival contestant, or to drive him from the field, he cannot justify such use, because of his patent right, except to the extent of protecting his exclusive right. We have, therefore, the principle, which is recognized in all the cases, that if the subject matter of a contract, which otherwise would be illegal because in restraint of trade, is a patented article, this takes away the illegality only to the extent to which the field of the trade, controlled through the combination, is co-extensive with the field within which exclusive control has been granted by the law.

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This is the doctrine of *Henry vs. Dick*, 224 U. S., 1; *Bement vs. Harrow Co.*, 186 U. S., 70; the *Bath Tub Case*, and all the other kindred cases to which we have been referred.

The difference between this private field and the common field of trade, is, as a distinction, sufficiently clear, but there may be again an overlapping.

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The owner of a patented article has the right to enter upon this common field of trade. His patented article may be so superior, or of such less cost than anything else upon the market, as to supplant all others and give to him the whole trade as effectually as if his patented article has originally had the field itself. Indeed, its ownership may be sought, for the reason that it has this possibility of power. Again, the patent may apply to only certain features of the article of trade and yet enable the owner to reap the same advantage, and

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control a trade in what is beyond the exclusive rights given by the patent. The special circumstances affecting a particular contract or combination may make the principle difficult of application and the line of legality or illegality hard to draw, but the principle remains the same. The legality of such a contract is determined by the judgment of whether in its whole scope and legal intendment it is fairly limited in its operation to the proper field of trade belonging to the patentee, and whether any further advantages which flow to him are fairly incidental and are not the evil fruit of unfair practices employed to restrain the right of others to a share of the common trade. It is

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the legal intendment of the contract or combination which is to be found. The motives of the contracting parties, whether innocent or otherwise, do not determine the real character of their act, but it is determined through the judgment of the law. Motives and intentions, except as declared, or appearing from the character of the act, are too vague and difficult of ascertainment to be made the basis of the legal judgment called for in such cases. A conspiracy under this Statute, as at common law, may have, as an element, the seeking of an unlawful end or the employment of unlawful means.

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We learn from the opinion in the Keystone Watch Case Co. that the prohibited restraint of trade, beside being undue and unreasonable, must be the direct and not a merely incidental result of the contract or combination, before the latter will be condemned as illegal. If it is asked to be condemned, not because of the illegality of the means employed to accomplish its end, but because monopoly results as a consequence, the monopoly must be shown to be an unlawful monopoly, not the monopoly granted by the patent laws. A contract or agreement among business men, which had as its end to preserve to the owners of a patent, the exclusive sale of the patented article, and as its means the exercise of due, reasonable and fairly proper control over sales to be made, would not be condemned as void in itself or justify any inference of guilt under the Act of 1890. Where, however, by what was agreed to be done, the end indicated, in the sense of the result to be expected, was a monopolistic control of what was not the exclusive property of any one, or such a monopoly was the direct result of undue and unreasonable restraints of trade, to be employed as the means of carrying out what was to be done, the fact that any one or more of the persons concerned owned patents, would not prevent a finding of conspiracy.

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A feature of the Watch Case Co. litigation affords us an illustration of the extent to which patent rights enter into the defence to proceedings of this character. The feature, alluded to, was, in the language of the opinion, that of "the system under which the Howard watch was sold by defendants. Certain parts of the Howard watch were covered by bona fide patents taken out and used for a lawful purpose, and, as the owner of

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these patents, the company had the right to make a direct agreement with the jobbers, whereby a minimum price was fixed at which the jobber ought to sell. The company went further '(however)' and by mere notice to the retailer, accompanying the box in which the watch was sold by the jobber, attempted to fix the minimum price at which the retailer might sell to the consumer. When the company sold the watch to the jobber it had fully exercised its right to vend and had no right to use the notice subsequently given, in order to control the price at which the retailer might sell."

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As a conclusion to the whole discussion, we deem the Bath Tub Case to be decisive of the principle contended for by the United States. There it is true the patent was not on the ware, which was the subject of the trade sought to be monopolized, but on a tool used in its manufacture, and the case doubtless might have been ruled upon that distinction.

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We cannot accept, as well taken, the position that it was so ruled, because the Court, in formulating a statement of the principle upon which the ruling was based, expressly refused to plant the decision on this narrow ground, but placed it upon the broad principle that the agreements in that case "transcended what was necessary to protect the use of the patent or the monopoly which the law conferred upon it. They passed to the purpose and accomplished a restraint of trade condemned by the Sherman law." "The agreements \* \* \* combined the manufacturers and jobbers \* \* \* in a combination \* \* \* condemned by this Court as offending the Sherman law. The added element of the patent \* \* \* cannot confer immunity from a like condemnation \* \* \*

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and this we say without entering into the consideration of the distinction of rights for which the Government contends between a patented article and a patented tool used in the manufacture of an unpatented article. Rights conferred by patents are indeed very definite and extensive, but they do not give, any more than other rights, an universal license against positive prohibitions. The Sherman law is a limitation of rights \* \* \* which may be pushed to evil consequences. \* \* \*

We would feel constrained, on the authority of this case alone, to find that the agreements and acts of the defendants in the present case went far beyond what was necessary to protect the use of the patents or the monopoly which went with them, and that the end and result, which would be expected to be and was accomplished, was the restraint of trade condemned by law. Some of the considerations which move to this conclusion are stated later.

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This is a lengthy prelude to the consideration of the special facts of this case. We feel relieved from the necessity of any extended reference to them, because they are set forth in the complaining petition, with a precision and accuracy which has prevented denial, except as to the motives which actuated the defendants and the legality of the monopoly. With respect to the motives and conscious purposes by which men are actuated, it has been well said that these "cannot be easily estimated," and we may concede to the defendants no purpose to offend against or to evade the law, and that their intentions were as beneficent and have resulted in as much good to the patronage of the art as is claimed, and that this good bears a fair relation to the profits received by them. This

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is foreign to the inquiry which we have made, because the duty to refrain from what is prohibited by law "cannot be evaded by good motives." Moreover, "the law is its own measure of right and wrong," as well as the judge of whether a transaction is of the character which it condemns. If, in the judgment of the law, a contract or co-operating agreement is such as to work an undue and unreasonable restraint of trade and through such restraint to monopolize trade or any part of it, the judgment is one of condemnation, no matter how innocent or otherwise praiseworthy the motives of those who had part in it.

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We do not, therefore, feel called upon to make any specific findings on this subject beyond what is stated to be found. The real motives of those, whose minds conceived and whose wills carried through this combination, were doubtless like those behind almost all other human acts, probably of a mixed character. We would not be justified, and would certainly have no wish, to deny the presence of the very laudable motives, which defendants avow in their answer, some of which were to gratify their desire to allay bickerings and recriminations among themselves, to advance and improve the art, to protect the morals of the public and, as they frankly admit, to make money for themselves. Certain it is, that the end and purpose of the plan, was to dominate and control the trade, in all the accessories of the art and, in order to assure this, to control the entire motion picture business. We are driven to this conclusion, not only because that is the plain meaning of what they did, but also because they themselves categorically declare the latter to be the imperative need of the business and one which they alone could supply. The need was

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for a single directing and regulating head. This extended even to a censorship of what was shown. The United States could not, and the States would not, interpose for the purpose of regulation, and the defendants claim the credit of having performed this neglected duty of the State. In doing all which was done, the defendants not merely deny the illegality of either end or means, but also lay claim to commendation. We only mention this to make clear the fact, that, they did monopolize, and the only question left, is whether this monopoly is a lawful monopoly, or was accomplished through an unlawful restraint of trade.

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The combination was not formed until 1908. The defendants were at that time engaged in the business as manufacturers or importers. There were scores of jobbers buying and distributing films and necessary supplies to thousands of exhibitors. The business was expanding, literally by leaps and bounds. The total investment ran into millions. There was, therefore, a trade to be restrained and one well worth monopolizing. The original plan, if it was contemplated, did not disclose, any purpose to exclude the middle men, and, from its first being put in operation, 116 jobbers were licensed by and did business with the defendants. Within a short time, however, the absorption of this part of the trade was decided upon, and the General Film Co. was formed to take over the business of distribution. How effective and thorough were the methods employed, is shown by the fact, that, of the 116, there is left one solitary survivor.

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The plan out of which these methods grew was first to combine the defendants, who were manufacturers and importers of films, in an agreement to act as one man might have acted. Lists of ex-

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changes and of theatres, were prepared and no exchange was permitted to have films, and no theatre to exhibit them, unless with the consent of all the defendants. The names of none appeared upon this list, except such as bought all supplies from the defendants, and any who dealt otherwise were dropped. Every theatre was required to pay a royalty for the use of a projecting machine, even when the machine had been owned by the exhibitor, before the combination was formed. The films passed into the possession of exchanges and exhibitors under

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an agreement which enabled the defendants to recall them at will. It is too clear for comment, that the mere possession of the power here shown would make its assertion seldom necessary. It was, however, effectively exercised. It is also clear that such a combination is condemned by the Act of 1890, unless immunity is given by the patent laws. The pressure, here, is upon the weak point of the argument on behalf of the defendants. The fault in it, is basic. There is doubtless injustice in applying, even rhetorically, the "dead indian" aphorism to trusts. It may be admitted that, there may be,

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trusts which are both living and good. When a monopoly has been found, however, to be the result of an unlawful restraint of trade, the argument, that the combination, through which it has been accomplished, is a good trust, or was formed from good motives, or that good results from the monopoly, is, for legislative, and not judicial consideration. As already stated, it is the legal intendment of the whole scheme, which determines its character—what is its end and what the means to be employed—to be found from the natural and to be expected results. Here, again, the illuminating phrase employed in the Keystone Watch Co. opin-

ion clarifies the thought. If the end is monopoly, and the means the restraint of trade, the inquiry is directed to the character of the restraint. If that is undue and unreasonable, and was directly intended, and the monopolistic results flows as a direct, and not a merely incidental consequence, the combination, through which it is brought about, is illegal. The same conclusion follows a finding that the end is illegal because reached through the same means. Indeed, the two things come to be, nearly, if not quite, the same, although there is room for a difference.

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The defendants had the right to propose to themselves, as an end, the protection of their exclusive right to sell an article, protected by a patent, which was their property. They had the right to employ, as a means to this end, due and reasonable regulations, and to impose any lawful conditions of sale. If restraint of trade and monopoly flowing from it, incidentally resulted as a consequence, as neither the end proposed nor the means employed was unlawful, the combination which effected these objects, could not justly be condemned.

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The owner of a patented device, process or product may undoubtedly acquire from another any issued patents for improvements, and we see no reason to deny the right of the owners of the original patent, and of the patented improvements, to pool their ownerships for their joint or common protection. This we understand to have been expressly ruled. *U. S. vs. United Shoe Co.*, 222 Fed., 349. Indeed, this case may well be claimed as authority for the proposition (within its facts) that there might be a combination of the owners of different patented machines all entering into a manufacturing trade. However this may be, the distinction sought

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to be pointed out is, that while the owner of a patent on a plow, covering the handles or beam, might acquire or join with the owners of patents covering the mold-board or share or other parts of the plow, for the protection of the patented rights of all, and thereby incidentally secure an enlarged part of the trade in plows, the judgment would refuse to sanction a combination between the owners of patented plows, patented harrows, patented reapers and binders, and other implements of husbandry, and large dealers in these implements, who were not

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owners of patents, for the purpose of monopolizing the whole trade in the products of agriculture, if **the direct end first proposed** was to unduly and unreasonably restrain trade, as a means to the final purpose of monopolizing. The ownership of the patents, in such a case, surely could not be accepted as a defence to the charge of unlawful combination.

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If a reason to support the distinction between these supposititious cases is asked for, it may be found in the fact, that, in the first case, it could not be concluded that the scheme of the combination had no normal and real relation to the protection of the patent rights; in the second case, no such relation could be even plausibly said to exist, and its assertion would be characterized as a pretense.

The legal justification, set up by the defendants, for what they have done, and for everything they have done, is that in so doing, they were lawfully asserting rights acquired by them, through a large number of overlapping patents. The total number reaches 16. Ten of these are admittedly, however, of minor importance, and, indeed, of no importance, in their bearing upon the case. The remaining six may be roughly catalogued as one each pertaining to films, cameras, and what is termed the Latham

3319

Loop, and three to projecting machines. The ownership of these patents was divided among some of the defendants. Others had no interest therein, except in so far as they dealt in the different apparatus, features of which, were covered, or claimed to be covered, by the several patents respectively. If the combination had been limited, and the arrangements and the scheme in its entirety, had possessed, or could be found to have, any normal real relation to the assertion and protection of these patented rights, and this had been the end proposed, the defendants would be upheld in the maintenance of such rights.

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We are constrained, however, to find that there was no such relation, but that the end, directly proposed, was, the imposition upon the trade of an undue and unreasonable restraint, in order that, as the immediate and direct effect and result of the combination, the defendants might monopolize the trade in all the accessories of the motion picture art so far as they are articles of commerce.

A further end proposed, and which has largely been achieved, is the domination of the motion picture business itself, and it requires no prophetic vision to foresee that the ultimate result would be, that no play would be written, or dramatically enacted, except by authors and artists favored by the defendants.

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It is further found as a fact that the defendants did, in furtherance of the scheme of the combination so to do, directly impose upon the trade undue and unreasonable restraint, and that such restraint was the end proposed to be directly reached, and was not merely incidental to efforts to protect the rights, granted by the patents, but went far beyond the fair and normal possible scope of any efforts

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to protect such rights, and that as a direct and intended result of such undue and unreasonable restrictions, the defendants have monopolized a large part of the inter-state trade and commerce in films, cameras, projecting machines and other articles of commerce, accessory to the motion picture business.

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It is further found, for what the finding may be worth, that although the ends proposed in the combination, and carried out by the defendants, were first this restraint, and through this, the monopolizing of the trade to reap commercial advantages to themselves, a further inducement and motive was (and these were also ends in view), the wish to relieve each other from the odium of infringement, to end contests which hampered the development of the art, to protect the morals of the public by the prevention of the exhibition of suggestive or otherwise improper pictures, to promote the progress of this branch of dramatic art by improving the character of the shows, both in the artistic merits and mechanical perfection of the display, and generally to supply, what, up to that time, the State had neglected to furnish, a regulating and governing authority over the entire motion picture business.

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The end and purpose of the combination, and in this sense the motive or moving cause, further was, not to protect the patent rights, which the Motion Picture Patents Co. was organized to take over, but the control of the patents was made a feature of the scheme in the belief, or at least the hope, that this would render the scheme (otherwise illegal) not open to the condemnation of the law.

We conclude with the formal finding, in the language of the Act of Congress, that the contracts, enumerated in the petition, and the combination there described, was a conspiracy in restraint of

trade or commerce among the several States, and with foreign nations, and were and are illegal, and that the defendants and each of them (with the exception next noted) have attempted to monopolize and have monopolized, and have combined and conspired, among themselves and with each other, to monopolize, a part of the trade or commerce among the several States, and with foreign nations, consisting of the trade in films, cameras, projecting machines and other accessories of the motion picture business, as charged in the petition of complaint filed.

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The exception referred to is this: Melies Manufacturing Company, one of the corporation defendants named in the petition, has denied (as have all of the defendants) that it was in any sense a party to the combination charged. We have gone over all the proofs without finding any, which go to making good of the charge against this particular defendant. It is therefore excluded from the findings made, and the petition as against it is dismissed.

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The conclusion is that the petitioner is entitled to the relief prayed so far as indicated by this opinion, and a decree, to effectuate the findings made, may be submitted.

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This statement should perhaps be added. The point has been raised by the United States that the Edison patent on the picture film, was limited to its negative form, and did not cover the positive motion picture films, which were dealt in commercially. The conclusions, to which we have arrived, have been reached without such a finding.

*Defendants' Exhibit No. 4.*

3328

United States of America,  
 Eastern District of Pennsylvania, } *et. :*

I, William W. Craig, Clerk of the District Court of the United States for the Eastern District of Pennsylvania, do hereby certify, that the annexed and foregoing is a true and faithful copy of opinion, filed October 1, 1915, in the case of United States vs. Motion Picture Patents Company, No. 889, October Session, 1914, now remaining among the records of the said court in my office.

3329

In Testimony Whereof, I have hereunto subscribed my name and affixed the seal of the said District Court at Philadelphia, this fifteenth day of October, in the year of our Lord one thousand nine hundred and fifteen, and in the one hundred and 40th year of the Independence of the United States.

(Seal)

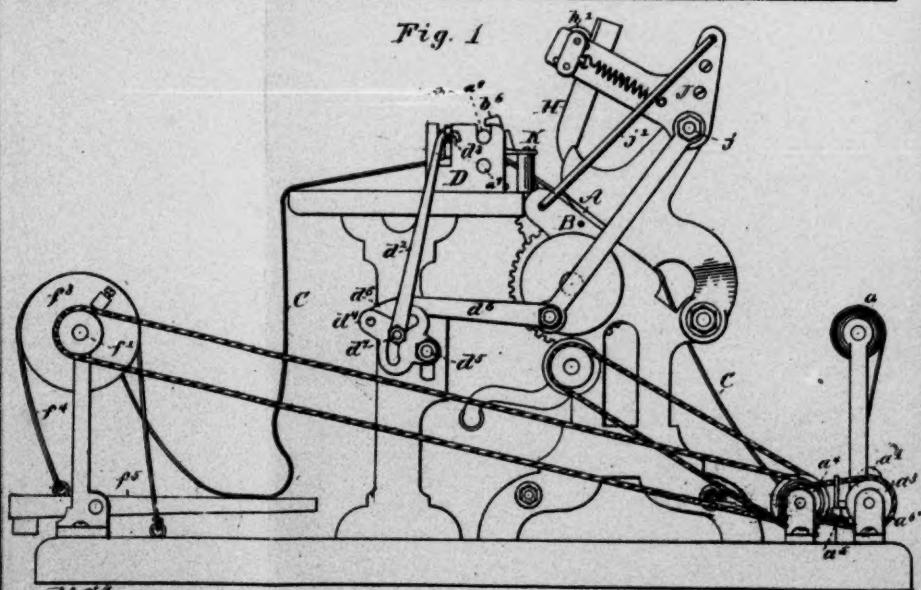
WILLIAM W. CRAIG,  
 Clerk District Court U. S.,

3330

By E. G. JOHNSON,  
 Deputy Clerk.

Raffia

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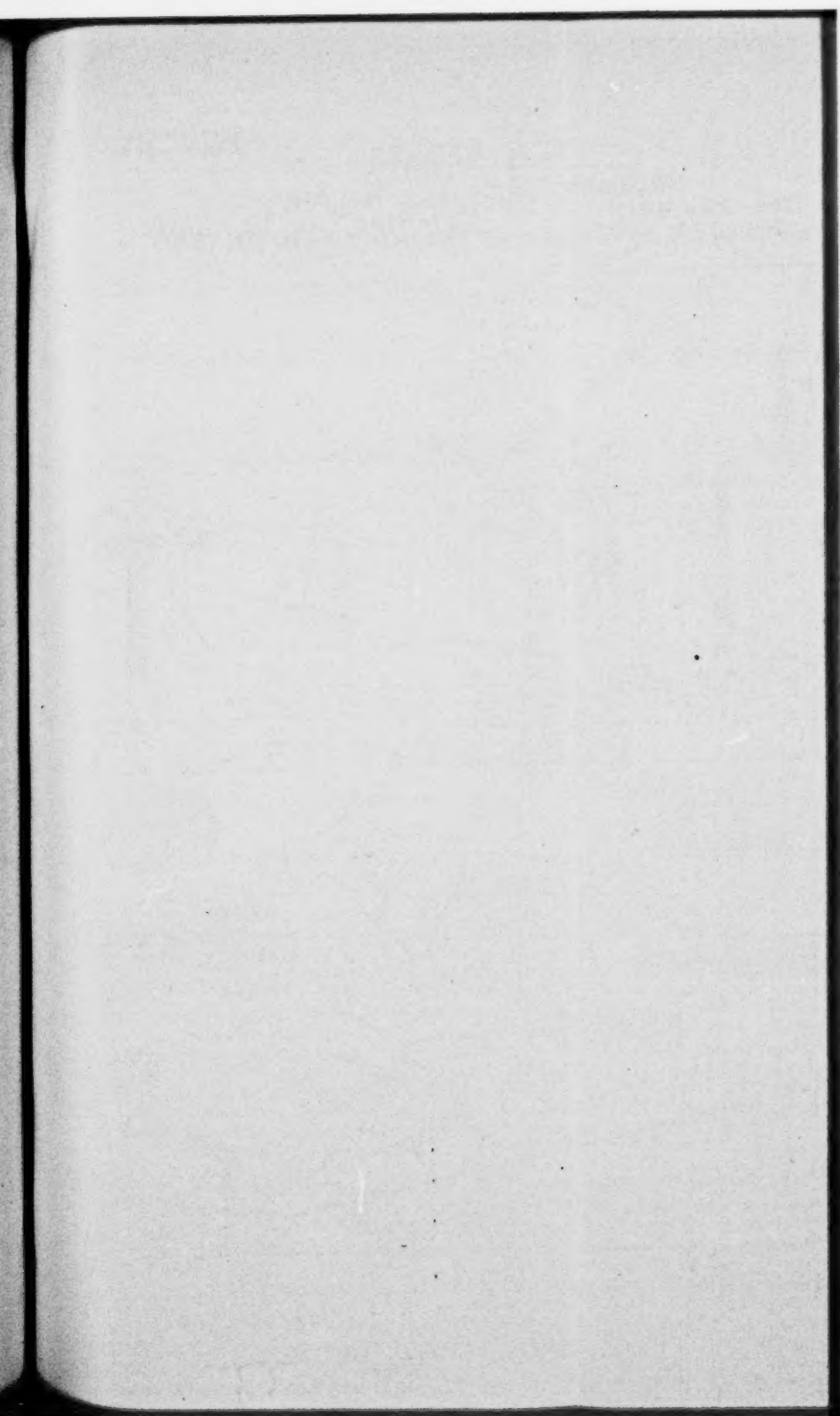
Witnesses:  
Frank G. Parker

*Fig. 2.*

*Inventor:*

Geo S G Buel

Wellington P. Kidds



W. P. KIDDER.  
Chromatic Printing Machine.  
No. 224,440. Patented Feb. 10, 1880.

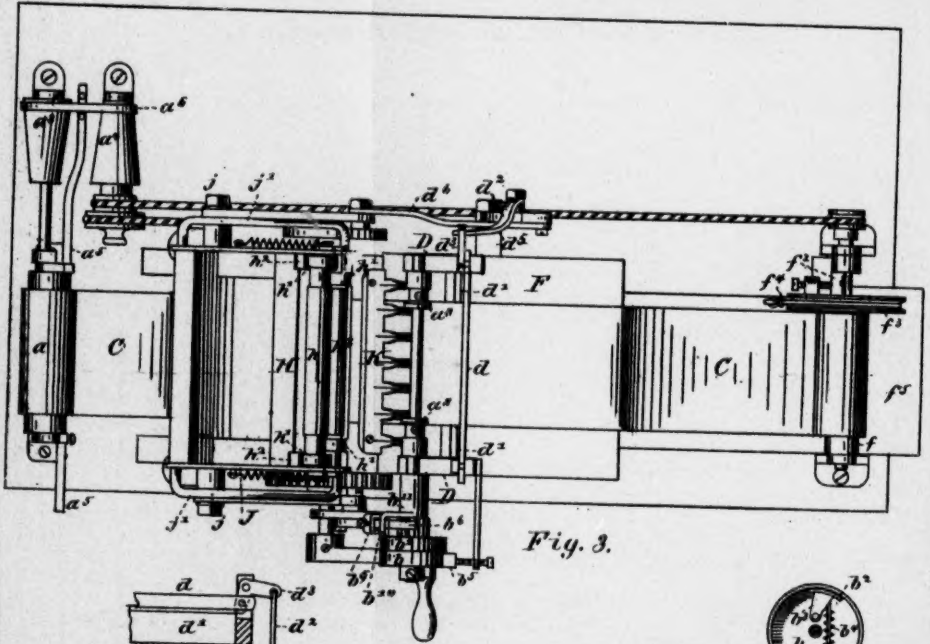


Fig. 3.

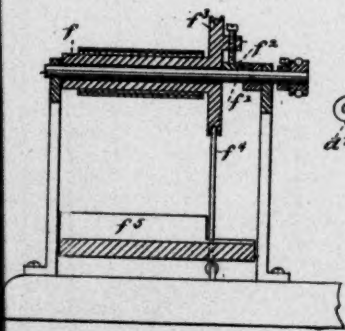
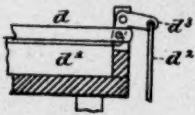


Fig. 4.

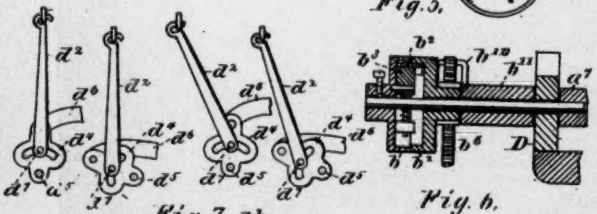


Fig. 6.

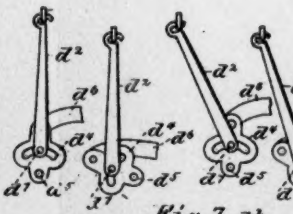


Fig. 7.

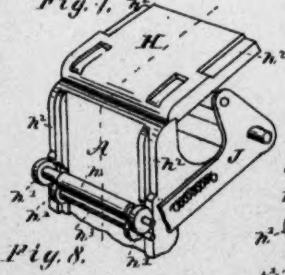


Fig. 8.



Fig. 9.

Witnesses:  
Frank C. Parker.

Wm. O. G. Coale

Wellington P. Kidder

Inventor:

# UNITED STATES PATENT OFFICE.

WELLINGTON P. KIDDER, OF BOSTON, MASSACHUSETTS.

## CHROMATIC-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 224,440, dated February 10, 1880.

Application filed March 14, 1879.

To all whom it may concern:

Beit known that I, WELLINGTON P. KIDDER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Printing-Presses, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, making a part hereof.

In the drawings, Figures 1 and 2 are side elevations; Fig. 3, a plan.

The other figures show details, and are referred to below.

A is the bed, and B the platen, of a printing-press, properly connected together to make the impression, and C is the strip to be printed. The strip C is wound upon a drum, a, suitably supported in convenient proximity to the press.

Heretofore in all presses known to me adapted to print a long strip of paper or other material the paper was unwound from the drum or reel by the action of the feed, the drum or reel being one side of the platen and the feed the other side. The effect of this is to throw more strain upon the printed paper than is desirable, especially when the paper is of a poor quality; and one feature of my present invention is designed to remedy this difficulty, this feature of my invention consisting in the use of two feeds, one serving to draw the paper from the drum or reel or other supply, so as to have the paper slack between the first feed and the form, while the other feeds the paper to the action of the type by simply taking up the slack furnished by the first feed.

The auxiliary feed in the drawings consists of the rollers  $a' a'$ , between which the strip of paper C is passed. The under roller,  $a'$ , is revolved positively, while the upper one,  $a'$ , may be revolved by friction only. To regulate the speed of this feed I use a conical pulley,  $a^2$ , fast to the shaft of roller  $a^2$  and belted to a conical pulley,  $a^1$ . The belt-shipper  $a^3$  controls the position of the belt  $a^2$ , and thereby determines the quantity of paper fed by this auxiliary feed  $a' a'$  in a given time. The object is to keep the paper slack between the auxiliary feed  $a' a'$  and the main feed  $a^2 a^2$ , in order to relieve the latter feed of the duty of

drawing the paper from the reel or other supply.

The auxiliary feed may be intermittent and be driven by mechanism like that used on the main feed; but with the conical pulleys  $a^3 a^4$ , belt  $a^2$ , and belt-shipper  $a^3$ , by a slight change in the position of the belt-shipper  $a^3$ , the speed of the auxiliary feed can be regulated, and thus the paper be kept slack below the platen.

This combination of the conical pulleys  $a^3 a^4$ , belt  $a^2$ , and belt-shipper  $a^3$  with the feed  $a' a'$  also constitutes a part of my invention.

The strip of paper C extends from the feed  $a' a'$  through suitable guides and between the bed and platen through the main feed  $a^2 a^2$ , being a roll actuated positively, while  $a^2$  may be actuated by friction only. In a bed-and-platen press this roll  $a'$  must be actuated intermittently, and in order to effect this I have combined with this feed  $a' a'$  the clutch device shown in detail in Figs. 5 and 6.

The two wheels  $b$  and  $b'$  are arranged as shown,  $b$  being fast to the shaft of roll  $a'$ , while  $b'$  and the pinion formed on its hub are free to revolve on that shaft except when  $b$  and  $b'$  are connected together by the clutch mounted on  $b$ . This clutch consists of the shoe  $b^2$ , wide enough to engage with the flange of wheel  $b'$ , this shoe  $b^2$  being mounted on the cam  $b^2$ , and the cam  $b^2$  being pressed in one direction by the spring  $b^4$ . When the motion of  $b$  is such that the friction of its flange on the shoe  $b^2$  tends to move the shoe and its cam  $b^2$  against the spring  $b^4$ , that spring yields, and thus the flange of  $b'$  slips over the shoe  $b^2$  without moving wheel  $b$ . For greater certainty, and also in order to prevent the wheel  $b$  moving by its own momentum at the end of the feed, I use a brake,  $b^3$ , on wheel  $b$ . (See Fig. 1.) But when the motion of wheel  $b'$  is such that the friction of its flange tends to move the shoe  $b^2$  and its cam  $b^2$  in the opposite direction—that is, in the same direction as that in which they would be moved by the spring  $b^4$ —the cam causes the shoe  $b^2$ , which is loosely supported upon its cam, to bind tightly upon the flange of the wheel  $b'$ , and thus clutches them together, so that they move as one wheel.

In practice the shoe  $b^2$  is connected with cam  $b^2$  by a dowel-pin fitting loosely, but may,

of course, be otherwise connected, provision being always made for a slight tip of the cam sufficient to bind the shoe against the flange of wheel  $b'$ .

- 5 Motion is imparted to wheel  $b'$  by means of its pinion and the rack  $b''$ . That rack is connected to the piece  $b^7$ , which is secured to the wrist-pin  $b^8$ . The motion of the rack is made more or less by connecting it to the piece  $b^7$  farther from or nearer to the axis around which wrist-pin  $b^8$  revolves.

This combination of feed  $a^7$   $a^8$  with clutch  $b$   $b'$  and reciprocating rack  $b''$  also constitutes one feature of my invention.

- 15 In some cases it is important to adjust the motion of the feed within very exact limits, and the use of this rack  $b''$  with a slide,  $b^{10}$ , nicely fitted to the rack and secured to a sleeve,  $b^{11}$ , nicely fitted to its stud, enables me to use adjustable stops (one of which is shown marked  $b^9$ ) on the rack on each side of slide  $b^{10}$ . These stops are capable of very accurate adjustment, and they serve to prevent any variations in the feed arising from backlash or loose bearings.

- 25 The cutters  $d$   $d'$  are mounted in a frame which is rigidly connected to or made in one piece with the frame of the feed  $a^7$   $a^8$ . The purpose of this is to allow the adjustment of the cutters without changing their relation to the feed.

It is necessary, in order to adapt the press to various sizes of sheets, that not only the feed be adjustable, but also the position of the cutters in relation to the form of type.

- 35 In the press shown the cutter-frame and feed-frame are in one piece, and in practice this double frame  $D$  is held to the table  $F$  by clamps, so that the frame  $D$  may be readily adjusted toward or from the press.

- 40 The movable cutter  $d$  is actuated through the connecting-rod  $d^1$ , which connects the two bell-crank levers  $d^2$   $d^3$ . The stud  $d^4$ , which supports the bell-crank  $d^2$ , is secured adjustably to the frame of the machine (by entering a vertical slot in the frame in a well-known way) in order that it may be raised or lowered to suit the position of the cutter. The bell-crank  $d^2$  is actuated by the connecting-rod  $d^1$ .

- 45 When the axis of  $d^4$ , the axis of wrist-pin  $d^5$ , and the end of cutter  $d$  are in line, the cutter  $d$  is at its highest position, and the motion imparted to the cutter is very slight while the axis  $d^5$  moves across the line, the motion increasing rapidly as the motion of axis  $d^5$  gets lengthwise of that line.

- 55 Either the stud  $d^4$  or the connecting-rod  $d^1$  must be adjustable, as will be clear from the diagram, Fig. 7.

- When it is desired to roll up the printed strip (for example, in order to print upon both sides) the shears will not, of course, be operated, but this strip will extend from the feed  $a^7$   $a^8$  to the drum  $f$ . The paper must be so wound upon this drum that it will always be

The drum  $f$  is mounted upon a shaft,  $f'$ , so that the motion of the shaft  $f'$  will be imparted to drum  $f$  through the friction-shoe  $f^2$ . This friction-shoe is fast upon the friction-pulley  $f^3$ , which pulley is fast to drum  $f$ ,  $f^3$  being an enlargement of drum  $f$ , simply that the friction belt or brake  $f^4$  may act with greater power. This brake  $f^4$  is fast at one end to the floor or bed of the machine and at the other end to the lever  $f^5$ , which is sufficiently heavy at its outer end to produce a friction between the brake  $f^4$  and pulley  $f^3$  sufficient to prevent the drum  $f$  from revolving with its shaft  $f'$ , and thus prevent the winding up of the strip  $C$  on drum  $f$ . This causes the slack to accumulate on the inner end of the lever  $f^5$  (which is made wide for this purpose) until the weight of the accumulated slack is sufficient to depress the inner end of the lever  $f^5$ , thus raising its outer end, and thereby relieving the pulley  $f^3$  from its brake  $f^4$  to such an extent that the friction of shoe  $f^2$  is greater than the friction between pulley  $f^3$  and its brake  $f^4$  when the drum  $f$  is revolved by its shaft  $f'$ , and winds up the strip  $C$  until the weight of that part of it resting on the inner end of lever  $f^5$  is too small to counterbalance the lever—that is, until the outer end of lever  $f^5$  descends far enough to tighten the brake  $f^4$  on pulley  $f^3$  and stop the revolution of drum  $f$ .

This combination of drum  $f$  and shaft  $f'$  with the two sets of friction devices, one acting to make the drum and its shaft revolve together, and the other controlled automatically by the weight of the slack acting to prevent the drum from revolving with its shaft until a given quantity of the strip is slack, also constitutes one feature of my invention.

Another feature of my invention relates to the use of two or more inking-rollers, each supplying ink to a different part of the form; and this part of my invention consists in the combination, with the inking-rollers, of guides so arranged that each roller shall be held away from the inking-table and from the form during a portion of its travel over the table and form. Thus in the drawings the roller  $h$  is prevented by its guides  $h'$  from coming into contact with the lower part of the inking-table  $H$  and the lower part of the form, but is allowed, the guides  $h'$  entering grooves  $h^1$  along the edge of the table  $H$  and of the form, to come into contact with the upper part of the table and form. In like manner the inking-roller  $h^2$  is prevented by its guides  $h^3$  from coming into contact with the upper part of the table and form, but comes into contact with only the lower part of the table and form.

In printing with two colors one will be distributed to and applied by one of the rollers and the other by the other, and in this way all kinds of two-colored printing can be done, the feed being so regulated that that portion of the strip which receives an impression from

which prints red, for example, has made its impression, the feed is such that that impression is carried under the other part of the form, which prints black, for example, two impressions being necessary to make one complete impression.

In the drawings, J is the roller-frame, journaled at *j* to the bed A. One part of this frame carries the inking-rollers, as shown. The connecting-rod *j'*, extending from platen B to the frame J, causes the frame to rock on its journal. As the bed vibrates toward and from the platen this rocking of frame J carries the rollers over the inking-table and the form.

Another important feature of my invention consists in the combination of a bed-and-platen printing-press and a ruling apparatus, so arranged together that the intermittent feed of the press shall also act as the feed of the ruling apparatus, the purpose of this part of my invention being to rule letter and note sheets, bill-heads, &c., at the same time that they are printed.

In the drawings, K indicates a ruling apparatus, too well-known to need description. This apparatus is best applied so that the points of the ruling-pins shall rest on or near the feed-roll, as shown in the drawings.

This combination gives a new capacity to my press, and enables a very large class of work to be done upon it which before my invention required two separate machines, one for printing, the other for ruling.

By means of the printing-press, ruling apparatus, feed, and cutters, a long strip of paper can be printed, ruled, and cut into sheets at the same operation; and this combination also constitutes an important part of my invention. 35 40

What I claim as my invention is—

1. The combination of the two feeds *a'* *a''* and *a'* *a''*, in the manner described, and mechanism, substantially as described, for driving the two feeds at different speeds; the first feed drawing the paper from the drum or other supply and slacking it between the first feed and the form, the other feed drawing the paper thus slacked over the form, all substantially as described. 45 50

2. In combination, reciprocating rack *b'*, slide *b''*, and adjustable stop *b'''*, substantially as described.

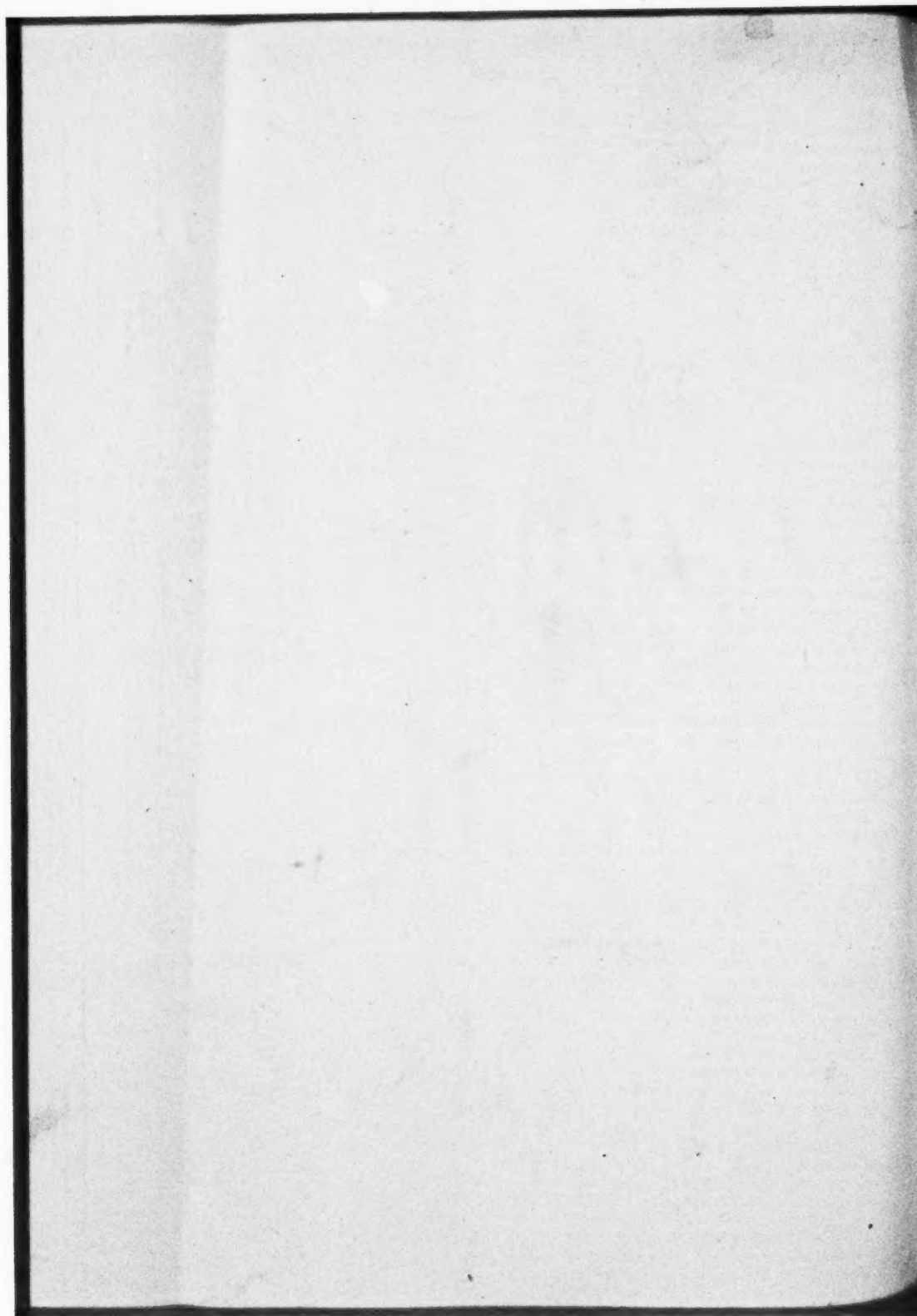
3. In combination, drum *f*, shaft *f'*, friction-brakes *f''* *f'''*, and lever *f''''*, all substantially as described. 55

4. In combination, feed-rolls *a'* *a''* and winding-up device *f* by means of automatic mechanism operated by the weight of the slack, substantially such as is above described, the weight of the slack, when in excess of the desired amount, acting to permit drum *f* to revolve. 60

WELLINGTON P. KIDDER.

Witnesses:

J. E. MAYNADIER,  
GEORGE O. G. COALE.



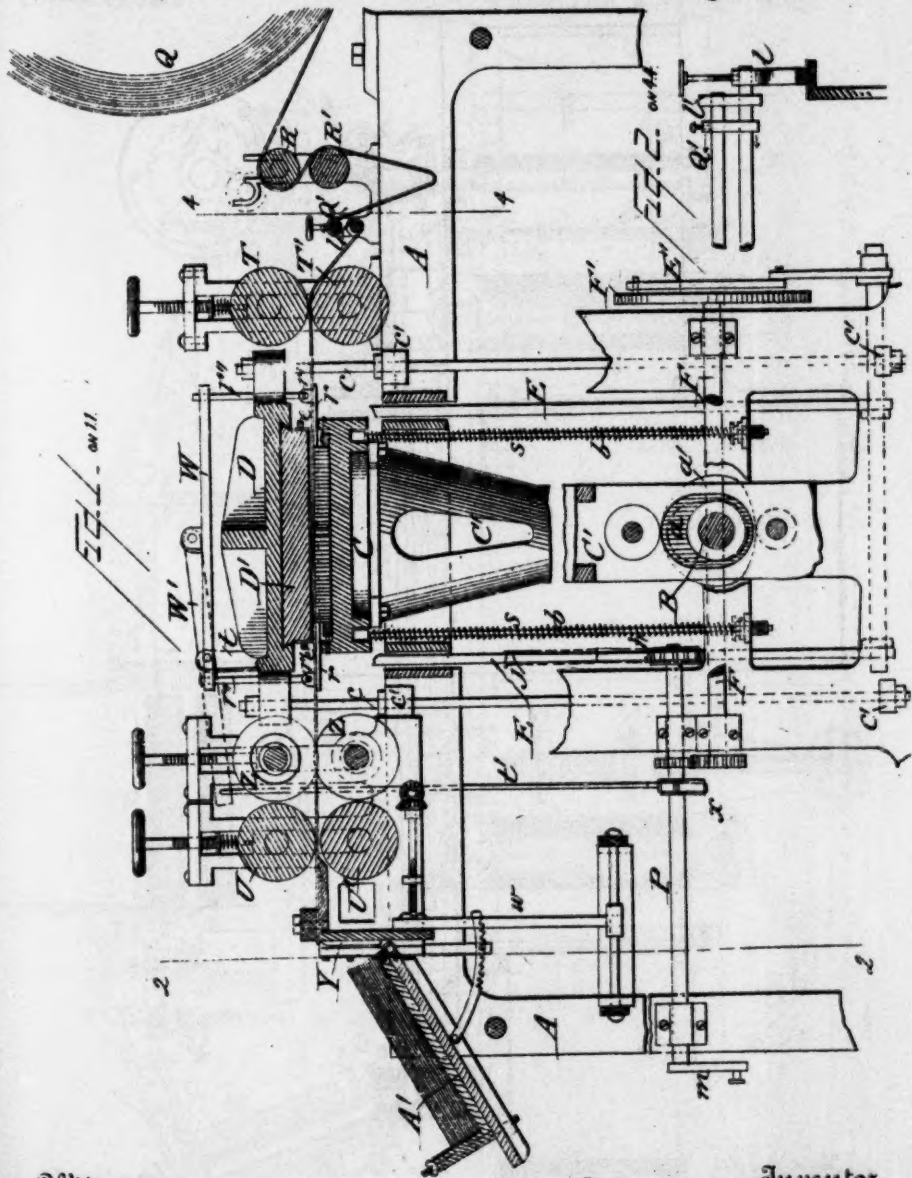
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3 Sheets—Sheet 1.

D. I. ECKERSON.  
PRINTING PRESS.

No. 433,776.

Patented Aug. 5, 1890.



Witnesses

J. H. Schott  
J. Burroughs.

Inventor

David I. Eckerson  
By W. H. Chandler  
Attorney

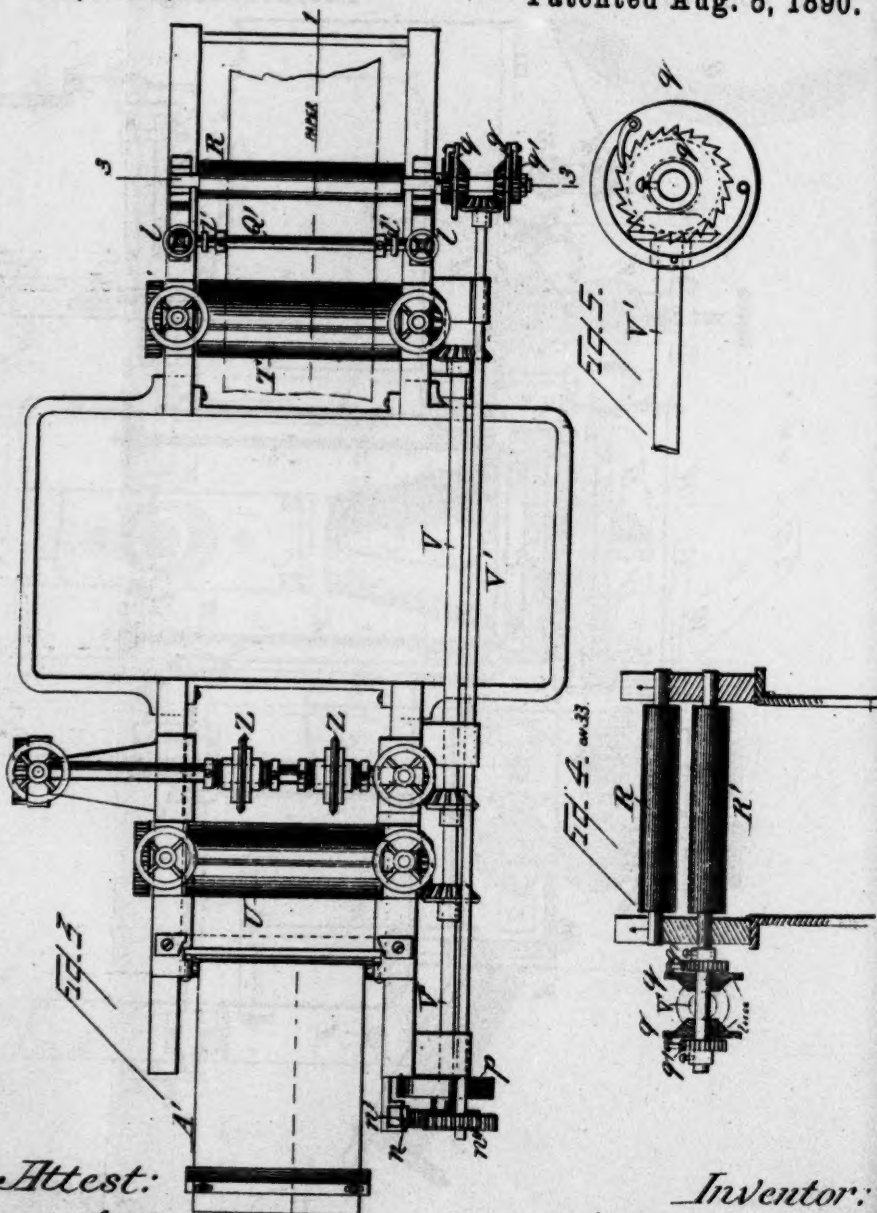
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D. I. ECKERSON.  
PRINTING PRESS.

8 Sheets—Sheet 2.

No. 433,776.

Patented Aug. 5, 1890.



*Attest:*

J. H. Schott  
J. Burroughs.

*Inventor:*

D. J. Ekerson  
By W. H. Chandler  
Atty

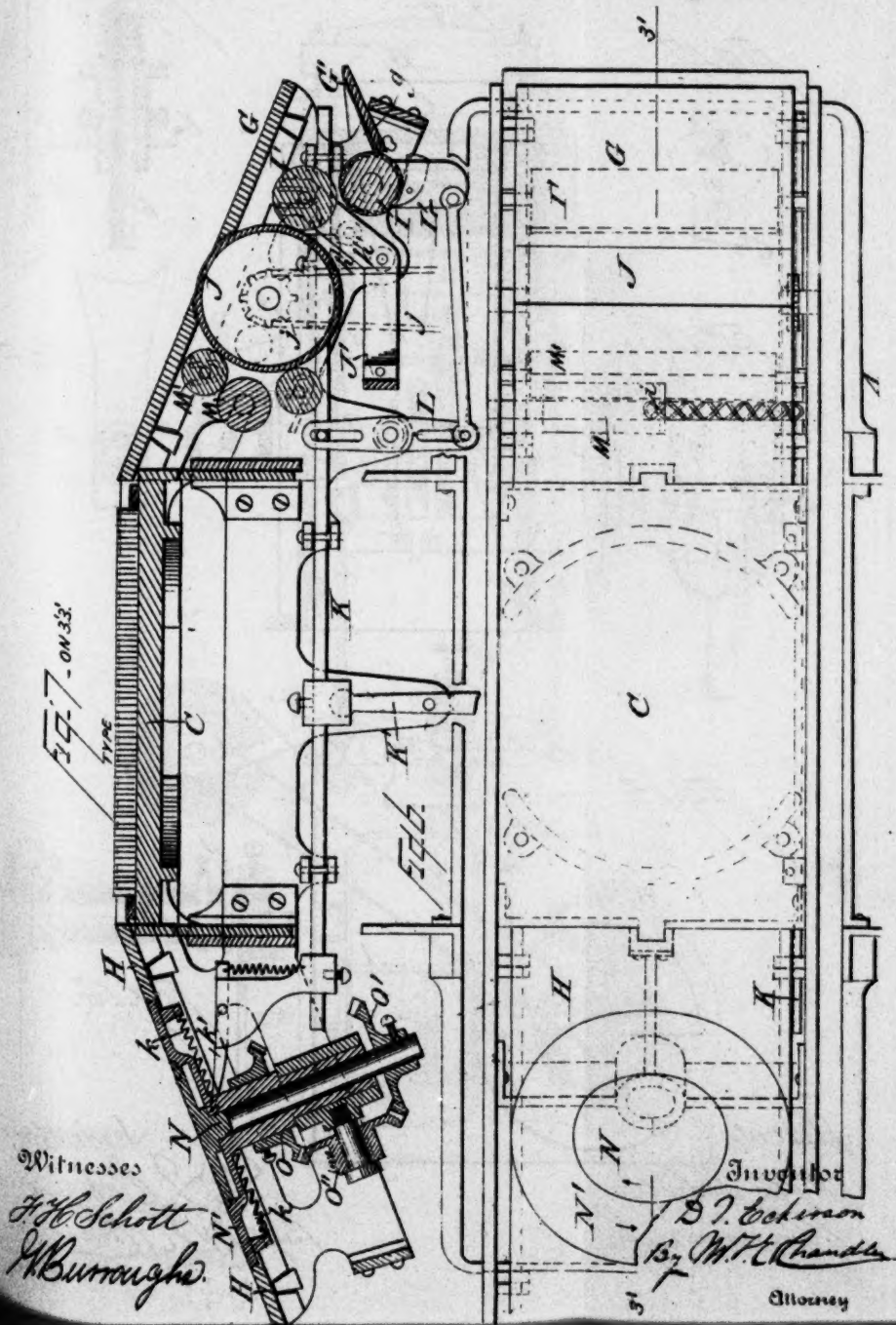
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8 Sheets—Sheet 3.

D. I. ECKERSON.  
PRINTING PRESS.

No. 433,776.

Patented Aug. 5, 1890.



Witnesses

*F. H. Schott*  
*W. Burroughs*

Inventor

*D. I. Eckerson*  
*By W. T. Chandler*

Attorney

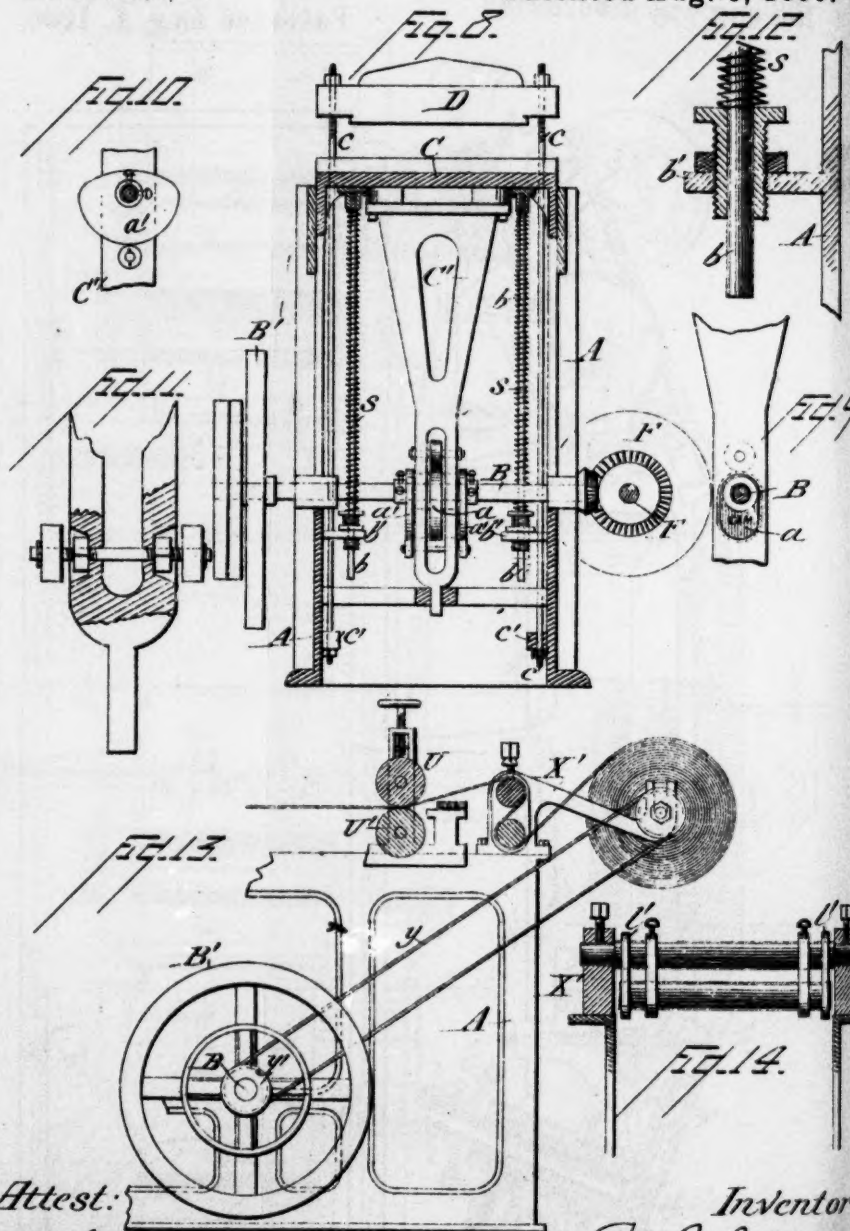
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8 Sheets—Sheet 4.

D. I. ECKERSON.  
PRINTING PRESS.

No. 433,776.

Patented Aug. 5, 1890.



Attest:

H. H. Schott  
H. Burroughs

Inventor

D. I. Eckerson  
By W. K. Chandler  
att

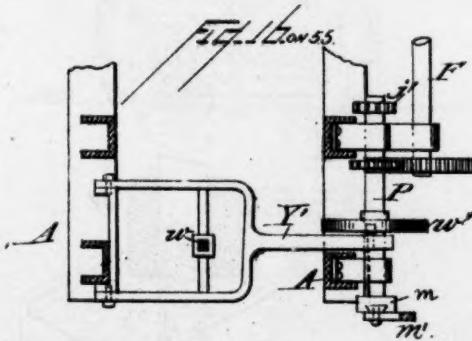
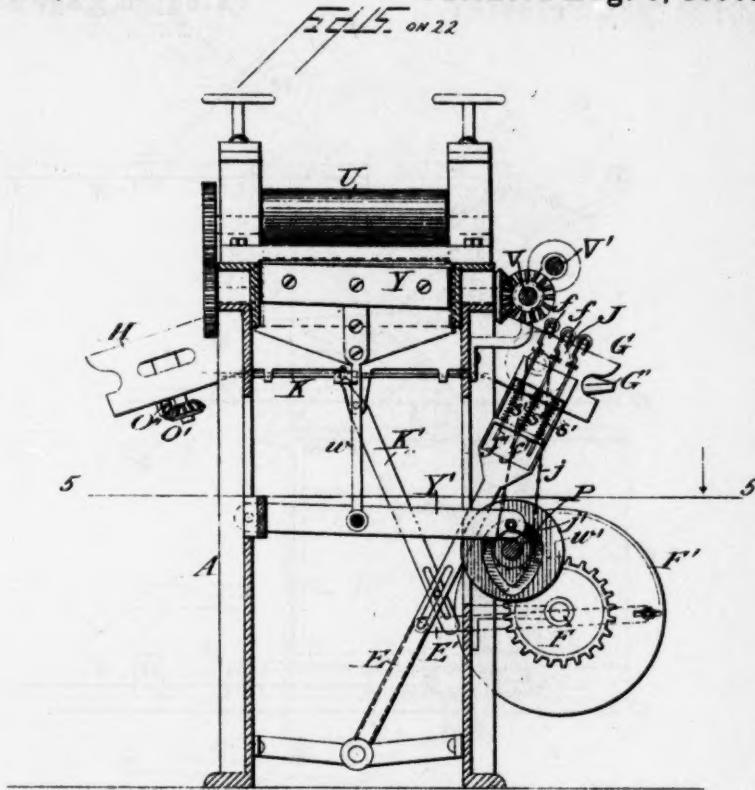
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8 Sheets—Sheet 5.

D. I. ECKERSON.  
PRINTING PRESS.

No. 433,776.

Patented Aug. 5, 1890.



Attest:

J. H. Schott  
J. Burroughs.

Inventor:

D. I. Eckerson  
W. H. Chandler  
Attorney

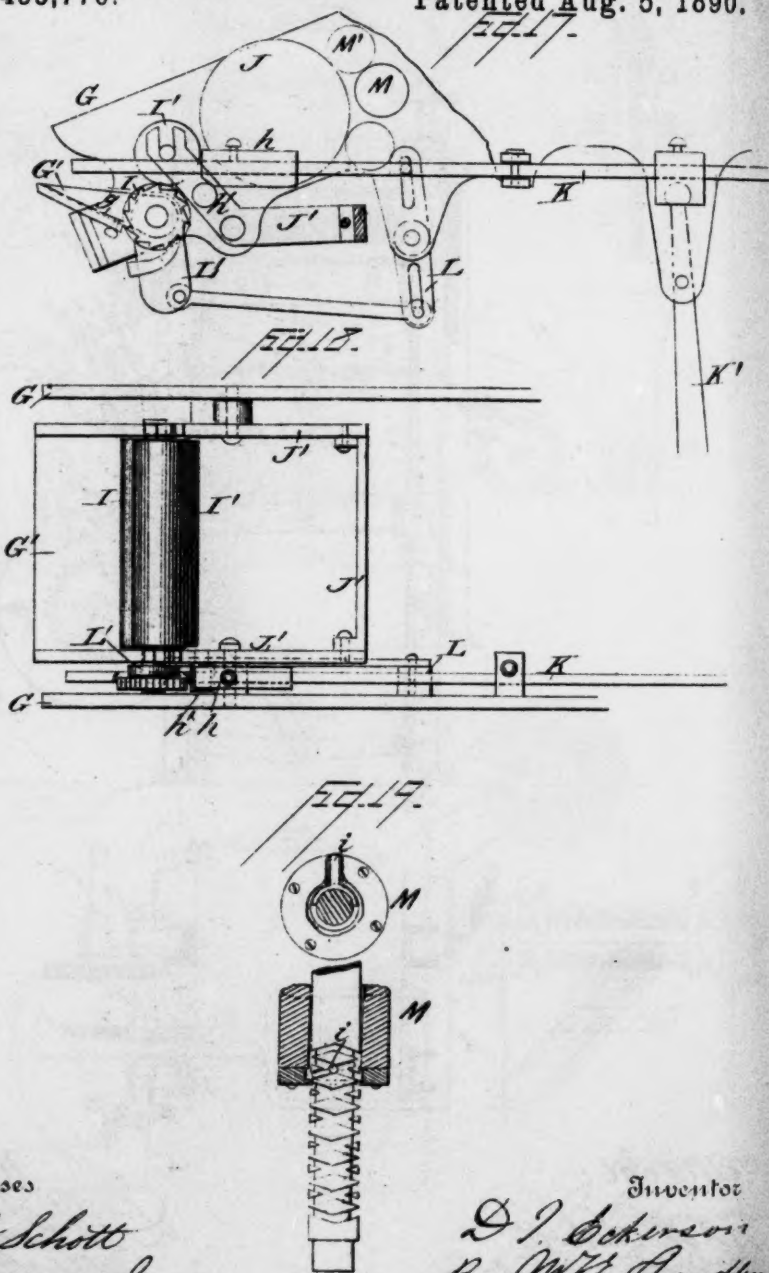
(No Model.)

D. I. ECKERSON..  
PRINTING PRESS.

8 Sheets—Sheet 8.

No. 433,776.

Patented Aug. 5, 1890.



Witnesses

*J. H. Schott*  
*M. Burroughs.*

Inventor

*D. I. Eckerson*  
By *M. W. Chandler*  
Attorney

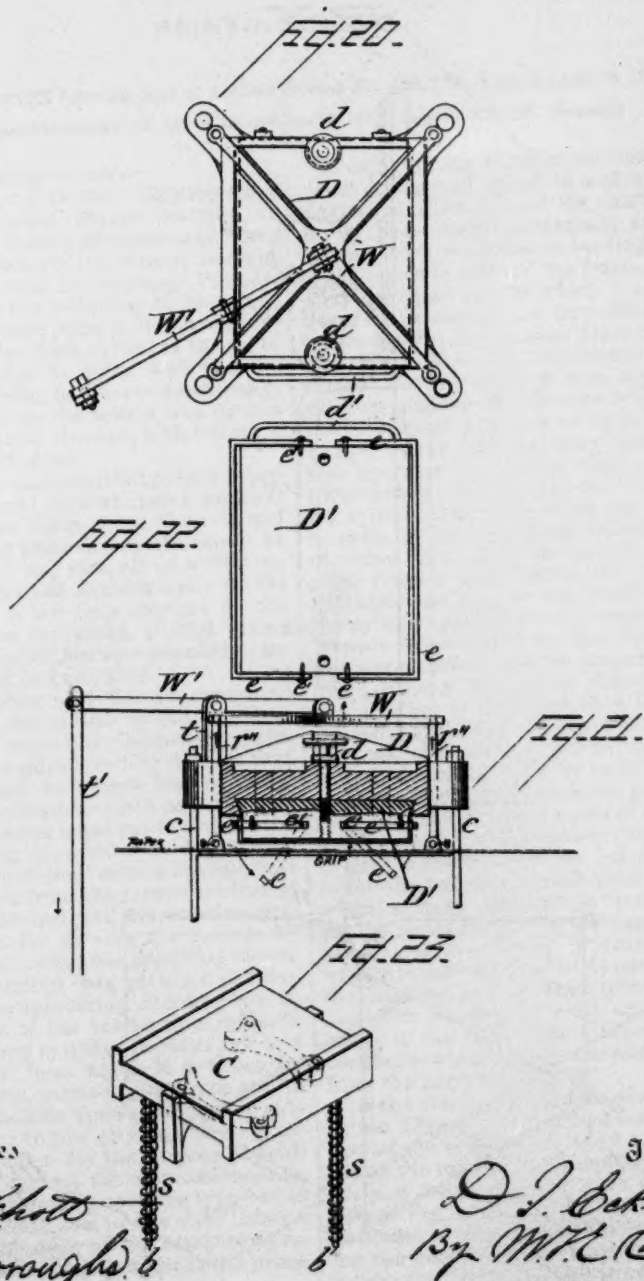
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D. I. ECKERSON.  
PRINTING PRESS.

8 Sheets—Sheet 7.

No. 433,776.

Patented Aug. 5, 1890.



Witnesses

Inventor

*J. H. White*  
*W. Burroughs*

*D. I. Eckerson*  
By *W. T. Chandler*  
Attorney

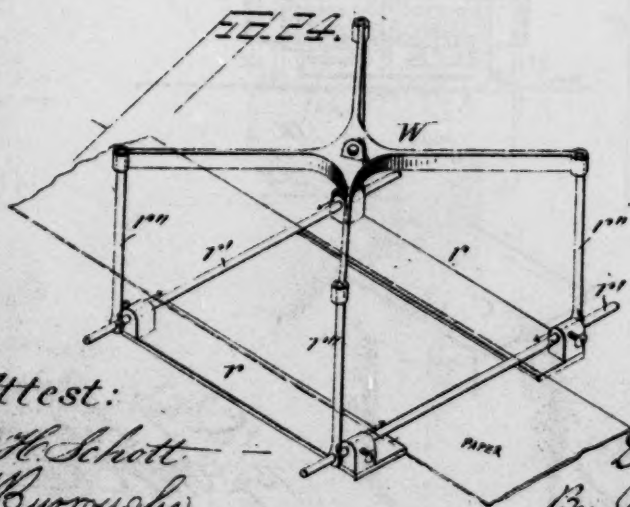
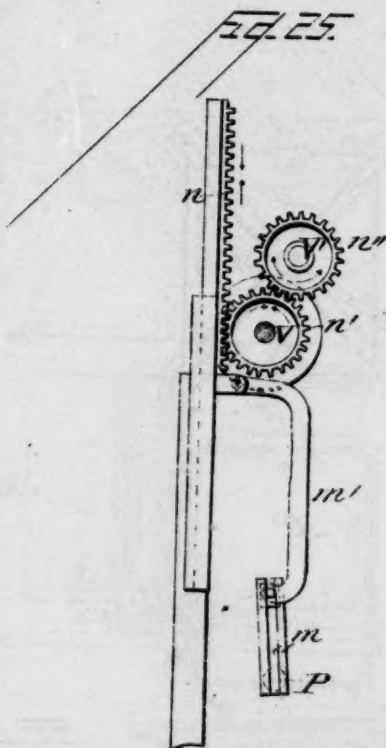
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D. I. ECKERSON.  
PRINTING PRESS.

8 Sheets—Sheet 8.

No. 433,776.

Patented Aug. 5, 1890.



Attest:

H. H. Schott  
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# UNITED STATES PATENT OFFICE.

DAVID I. ECKERSON, OF WORCESTER, NEW YORK.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 433,776, dated August 5, 1890.

Application filed September 20, 1888. Renewed June 27, 1890. Serial No. 356,995. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID I. ECKERSON, a citizen of the United States, residing at Worcester, in the county of Otsego and State of New York, have invented certain new and useful Improvements in Printing-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of printing-presses designed to print upon a continuous sheet of paper taken from the roll, and which, after being printed, may, if desired, be cut into sheets of any size, all of which operations are performed automatically by the machine, which is an improvement on the printing-machine for which United States Letters Patent No. 387,600 were granted to me on the 7th day of August, 1888.

The especial objects of this improvement are to improve the platen by the introduction of a sliding removable impression-plate; to so arrange the paper-feeding devices that there shall always be a slack loop of paper between the impression-plate and the roll from which the paper is taken; to provide the vertically-moving type-bed with counterbalance-springs, which shall relieve the cam that operates said bed from the greater portion of the weight of the bed and its attachments; to a slotted cam for driving the devices by which the paper is cut after receiving the impression, said slotted cam giving a positive motion to the reciprocating cutting-plate in both directions; to the inking apparatus, in which a revolving cylinder supplies ink to a stationary plate from which it is taken by the inking-rollers, carried to the type and to a revolving ink-table upon the opposite side of the machine; to the gripping devices attached to the platen for the purpose of holding the paper against the impression-plate, preventing its dropping upon the type-bed as the latter descends, and to the steel rods arranged upon the sides of the machine to retain the platen in position against the pressure of the type-bed.

In carrying out these improvements I construct a frame of metal, to and upon which all the operative parts of the machine are secured. These consist, essentially, of a suitable driving-shaft revolving in bearings attached to the opposite sides of the frame, said shaft carrying cams, one of which forces up the type-bed in making an impression, and the others draw it down away from the impression-plate after the impression has been made. To this shaft is also connected, by suitable gearing, the devices which operate the feeding-rolls, as well as those which give motion to the paper-cutting apparatus. It also operates the inking-rolls, which pass transversely over the type-bed from the inking cylinder and table upon one side of the machine to the revolving inking-disk upon the other side. The inking-cylinder is supplied from a suitably-shaped fountain attached to one side of the machine beneath the cylinder and table. The impression-plate is made removable from the platen, so that its elastic surface may be prepared to fit the inequalities of the type or plates from which the printing is executed, thus avoiding the necessity of raising the heavy platen for this purpose. The roll of paper to be printed from is carried upon a shaft in suitable supports at one end of the machine, the paper passing from said roll between a pair of rollers which are connected with another pair by gearing in such a manner that the paper passing between the two sets of rolls shall always form a loop at least sufficient in quantity to supply the paper needed for one impression, thus preventing the danger of tearing or otherwise injuring the sheet in its passage through the machine, as this slack prevents the sudden jerk which will come upon the paper owing to the intermittent movement of the feed-rolls, which supply it to and take it away from the impression-plate.

In the drawings accompanying this specification, Figure 1 is a vertical longitudinal section of the machine on line 1 1 of Fig. 3, and shows the relative positions of the principal parts of the press. Fig. 2 is a transverse section of Fig. 1 on line 4 4, illustrating the construction of the friction devices for preventing the drawing of more paper into the press by the feeding-rolls than is needed for each

impression. Fig. 3 is a plan view showing the relative arrangement of the feeding-rolls and their operating devices to the frame of the press. Fig. 4 is a transverse section of the press-frame on line 3 3 of Fig. 3, showing the mechanism employed to give motion to the first pair of feeding-rolls. Fig. 5 is an enlarged side elevation of the pawl-and-ratchet devices employed to give motion to said rolls. Fig. 6 is a plan of a portion of the press-frame, the type-bed, and inking-tables. Fig. 7 is a vertical section of the same on line 3' 3' of Fig. 6. Fig. 8 is a transverse vertical section through the press-frame, showing the platen and its holding-rods as well as the type-bed and the mechanism by which it is vertically reciprocated. Fig. 9 is a side elevation of the lower part of the type-bed support with the cam and shaft by which it is raised in making an impression. Fig. 10 is a similar view of one of the cams by which the type-bed is brought down after the impression is made. Fig. 11 is a view, partly in section, of the lower end of the type-bed support, showing the friction-rollers on which the cams that bring down the type-bed act. Fig. 12 is a sectional view of a portion of the press-frame with one of the adjusting devices for the springs which support the type-bed. Fig. 13 is a side elevation of a part of the press, illustrating the manner of winding the paper after once passing through the press. Fig. 14 shows the friction device for regulating the strain upon the paper during the operation of winding. Fig. 15 is a transverse section on line 2 2 of Fig. 1, and shows the means employed for operating the inking devices. Fig. 16 is a horizontal section on line 5 5 of Fig. 15 and further illustrates these means. Fig. 17 is a side view of one of the ink-tables and the means employed for carrying the ink from the fountain thereto. Fig. 18 is a bottom plan further illustrating these devices. Fig. 19 shows the means employed for the purpose of giving an endwise movement to one or more of the ink-distributing rolls. Fig. 20 is a top or plan view of the platen and lever for operating the gripping devices. Fig. 21 is a vertical section of the platen, showing the relative positions of the platen, the gripping devices, and the removable impression-plate. Fig. 22 is a bottom plan of the impression-plate. Fig. 23 is a perspective view of the type-bed and its supporting-springs. Fig. 24 is a perspective view of the gripping devices detached from the platen. Fig. 25 is a side elevation, on an enlarged scale, of the mechanism which operates the feed-rolls.

In the several figures, A represents the frame of the press, consisting, essentially, of two side pieces placed at a suitable distance from each other and firmly united by cross-bars bolted to the side pieces. This frame carries in suitable journal-boxes the shaft B, which crosses the frame, and is provided at one end with a tight and loose pulley upon which the belt runs, through which power is

communicated to the movable parts of the press, and it may also be provided with a fly-wheel B', which equalizes the motion, causing the machine to run steadily.

Midway between the two sides of the frame is secured to the shaft B a cam  $\alpha$ , which revolves in a slot formed in the standard C', which carries the type-bed C. This cam  $\alpha$  revolves in contact with an anti-friction roller secured in the slot above it and serves to raise the type-bed for the purpose of making an impression.

At each side of the standard C' is secured upon the shaft B a cam  $\alpha'$ , which revolves in contact with anti-friction rollers journaled upon the standard beneath said cams, which serve the purpose of drawing down the type-bed after the impression is made. By the use of these separate cams great speed is permitted, as the movement of the standard and type-bed is positive in both directions.

The type-bed C is securely bolted to the top of the standard C', and is guided in its reciprocations by depending guide-pieces, which are allowed a vertical movement in guiding-grooves formed in the cross-bars which connect the side pieces of the frame.

From the under side of the type-bed and attached thereto are two or more rods  $b$ , which extend downward, their ends passing through lugs  $b'$ , projecting from the sides of the frame. These rods  $b$  between the type-bed and lugs are surrounded by the coiled springs  $s$ , the tension of which is adjusted by sleeve-nuts passing through the lugs  $b'$ . These springs are so adjusted as to nearly or quite support the weight of the type-bed and standards, thus relieving the cam  $\alpha$  of the great weight it would otherwise be forced to carry, avoiding wear of the frictional surfaces, and by the almost perfect balance of the reciprocating parts allowing the type-bed to be operated at a great speed.

Secured in position above the type-bed is the platen D. In order to hold this platen firmly to resist the upward pressure of the type-bed in making the impression, four rods  $c$ , preferably of steel, pass through its projecting corners downward and engage with the lugs  $c'$ , projecting inward from the lower part of the frame. Suitable nuts screwed upon these rods are used not only to hold the platen, but also to adjust it to a position parallel with the upper surface of the type-bed.

As the surface which receives the impression from the type-bed must necessarily be of a yielding nature, and owing to the use of different kinds of type and the insertion of cuts to the surface of the type to be printed, it becomes necessary to fit the surface against which the impression is taken to this unevenness, and as the platen is too heavy to be moved readily so as to admit of the adjustment of its lower surface, the difficulty is overcome by providing the platen with a removable impression-plate. In order to afford a ready means of removal, this plate D' is in-

serted in dovetail grooves in the under side of the platen, and is firmly secured when in its proper position by means of screws *d d*, which pass down through the platen and screw into the plate. (See Fig. 21.) A handle *d'* is also attached to the plate, by which it can be drawn out of the grooves of the platen after the securing-screws have been removed. The cloth or other elastic surface covering the under side of the impression-plate is held in place by clamps *e e*, secured to the plate by the pivots *e'*. These clamps can be swung down from the sides of the plate, thus releasing the covering, but when forced back into a horizontal position stretch and secure the covering on the face of the plate.

The apparatus employed for applying and properly distributing ink to the face of the type consists of a swinging lever *E*, pivoted at its lower end to a cross-piece secured to the opposite sides of the frame. This lever carries at its upper end a series of inking-rollers *f f*, two or more in number, that are attached to the lever *E* by sliding rods *f' f'*. These rods are each surrounded by a light spiral spring *s*, the tension of which keeps the rollers always in contact with the surface of the type and the ink-tables, although said surfaces are not the arc of a circle the radius of which is the length of the lever, but merely approximate to such an arc by inclining the tables at an angle to the surface of the type.

In order to communicate the desired swinging movement to the lever *E*, it is connected by means of the pitman *E'* with an adjustable crank-pin in the crank-wheel *F'*, mounted upon the shaft *F*. This shaft revolves in suitable journal-bearings attached to one side of the frame, and lies at right angles to the main shaft *B*, from which it receives motion through the agency of bevel-gearing, Fig. 8, said gearing being so proportioned that the shaft *F* shall make one revolution to two of the main shaft, thus causing the rollers *f f* to travel once across the face of the type to each revolution of said main shaft.

The ink-tables *G* and *H* are secured to the frame at an angle of twenty degrees or thereabout to the face of the type, their inner upper ends approaching the level of the surface of the type when the same is at its lowest point or farthest from the impression-plate above it, so as to leave room between said type and plate for the free passage of the rollers *f*, which deposit a fresh supply of ink on the faces of the type at each passage over them. These rollers *f f* receive their supply of ink from the table *G*, beneath which is an ink-fountain *G'*. This ink-fountain carries the intermittently-revolving roll *I*, close to the surface of which is the edge of the spring-plate *g*, adjusted by means of set-screws passing through the bottom of the fountain. The position of this plate with relation to the roll *I* regulates the flow of ink from the fountain to the roll.

Beneath the plate *G*, and projecting slightly above the surface of the same through a slot formed in said plate for its passage, is the roll *J*, and journaled in an oscillating frame *J'*, between the rolls *I* and *J*, is the transfer-roll *I'*, which takes the ink from the roll *I* and transfers it to the roll *J*. Motion is communicated to roll *I'* and oscillating frame *J'* by the reciprocating rod *K*, which traverses the press transversely and is actuated by the lever *K'*, pivoted to a cross-piece of the frame, its lower end connected by an adjustable pin with the lever *E* and its upper end by a ball-and-socket joint with the rod *K*.

To move the roll *I* intermittently, the rod *K* is connected to the upper end of a swinging lever *L*, and the lower end of this lever by a suitable connection, with the lower end of the pawl-lever *L'*, the pawl of which engages with a ratchet-wheel upon one end of the shaft of the roll *I*.

To oscillate the frame *J'*, an adjustable sleeve *h* is placed upon the rod *K* in such a position that when the rod moves in one direction the beveled end of the sleeve strikes an anti-friction roll *h'*, pivoted to the frame, depressing the roll *I'* until it contacts with the surface of roll *I*. Then, as the rod reverses its movement the sleeve releases the friction-roll, and the weight of the rear portion of the frame *J'* elevates the roll *I'* into contact with roll *J*, and consequently transfers a portion of the ink it receives from the roll *I* to said roll *J*. In order to still further equalize the distribution of ink over the surface of this roll *J*, an equalizing-roll *M* is employed. The shaft of this roll is provided for a portion of its length with right and left screw-threads, and the roll, which is shorter than the others, is given a reciprocating motion upon its shaft by means of the swivel-nut *i*, which travels back and forth in said threads, carrying the roll with it. An additional roll *M'* may be so placed as to engage with the equalizing-roll *M*, as may also other rolls in such number as may be found necessary to perfectly distribute the ink. All of these last-named rolls are rotated by contact with the surface of the roll *J*, which in turn receives motion through the pitch-chain *q* from the sprocket-wheel *j'* upon the shaft *P*, connected by spur-gears with the shaft *F* in such a manner that the shaft *P* shall make two revolutions to one of the shaft *F*. As the ink-rollers *f* pass over the type from the table *G* to the table *H* upon the opposite side of the machine, they not only deposit ink upon the faces of the type, but carry a portion to the table *H*, which is provided with two rotating disks—a central one *N* and an annular disk *N'*—that surrounds the central disk, the faces of both being in the same plane as the remainder of the table *H*. The annular disk is provided with a downwardly-projecting sleeve that is journaled in the frame which supports the table. Said disk also carries a downwardly-projecting annular

ratchet *k*, with which the spring-pawl *k'*, carried by the reciprocating rod *K*, engages. The reciprocations of this rod therefore impart a rotary movement to the annular disk *N'*. This rotary movement is communicated to the inner disk *N* by means of the miter-gear *O*, secured to the sleeve of said disk, and from this gear to the gear *O'* upon the downwardly-projecting shaft of the disk *N* by an intermediate gear *O''*, revolving loosely upon a pin projecting from the journal-bearing which supports both disks. It will therefore be seen that from this arrangement of gearing both disks have a rotary motion, but in opposite directions, causing them to properly mix and distribute the ink deposited on them by the rollers *f, f'*, or which may be received from any other source.

The paper which supplies the press is taken from a roll *Q*, carried on suitable supports at one end of the press-frame, and passes over the roll *R*, thence backward between said roll and the roll *R'*, dropping downward from the latter and forming a depending loop between it and the friction device *Q'*. This friction device consists of two smooth bars placed parallel to each other and extending across the frame, the lower bar being longer than the upper and having its ends held adjustably by means of set-screws in the brackets *l*, which are in turn secured to the press-frame, the upper bar being retained in the desired position with relation to the lower one by the connections *l'*. From this friction device the paper passes to the first pair of intermittently-rotating feed-rolls *T* and *T'*, thence through the press between the type-bed and impression-plate to the rolls *U* and *U'*, from which it goes to the receiving-table at the end of the machine.

In order to give the several pairs of feed-rolls their proper motion, a slotted crank *m* is secured to the outer end of the shaft *P*. A pitman *m'* connects a movable pin in the slotted crank with the rack-bar *n*. This rack-bar engages with a pinion *n'*, loosely mounted upon one end of the shaft *V*. This pinion connects with the ratchet-wheel *p*, attached to said shaft, so that a movement of the rack *n* in one direction will rotate the shaft *V*; but its return or reverse movement acts only on the pinion *n'*, revolving it upon said shaft. At suitable points on this shaft *V* are placed bevel or miter gears, which engage corresponding gears on the shafts of the feed-rolls *T* and *U*, the corresponding rolls *T'* and *U'* being driven by spur-gears attached to the opposite end of the roll-shafts and engaging in the ordinary manner. It will be seen that by this method of operating the feed-rolls their movement is intermittent and that the amount of such movement is determined by the position of the adjustable crank-pin in the slotted crank *m*. This intermittent motion of these feed-rolls is rendered necessary by the fact that the paper must be stationary during the time it is receiving the impression, and that

its forward movement must occur while the type-bed is lowered and the type being inked. It will be observed that the rolls *R* and *R'* are but half the diameter of the others. Therefore to allow the same length of paper to pass between them that passes between the large rolls at each movement of the same their motions must be nearly or quite continuous. To accomplish this result, an additional shaft *V'* is placed above and parallel with the shaft *V*. This shaft *V'* is provided with a spur-gear *n''* and which engages with the gear *n'* upon the end of the shaft *V*. As this gear *n''* receives an alternate movement in opposite directions from the rack *n*, the gear *n''* and the shaft *V'*, with which they are connected, partake of the same movement.

In order to convert this into a nearly or quite continuous rotary movement of the rolls *R R'*, the shaft of the latter is extended across the end of the shaft *V'* and provided with two pawl-carrying miter-gears *q*, that revolve loosely upon the roll-shaft and engage with a similar gear upon the end of the shaft *V'*. Secured upon the roll-shaft outside the gears are the ratchets *q'*, with which the pawls upon said gears engage. The result of this construction is to rotate the roll *R'* continuously in one direction at a rate of speed that shall give the same forward movement to its periphery during a revolution of the shafts *P* as the large rolls make during the same time. Thus paper is continuously passing from the roll *Q*, falling down beneath the roll *R'* in a loop which is taken up at each movement of the intermittently-moving feed-rolls. By this means the jerking movement of the feed-rolls upon the roll of paper is obviated and all danger of tearing it from this cause done away with. As the paper would be liable to sag down from the impression-plate when the type-bed recedes, thus getting in the way of the ink-rollers, and as it is also necessary that it should be held firmly in contact with said plate at the time of making the impression, a gripping device is provided, which consists of two parallel plates *r, r'*, that pass beneath the opposite edges of the sheet of paper, and are (see Fig. 24) retained in the desired position with relation to the paper passing through the press by set-screws that allow of their adjustment upon the rods *r''* to any distance needed to enable said plates to engage the edges of the paper and hold it firmly against the impression-plate while the impression is being made. They then release the paper and allow it to be drawn forward for the next impression. In order to accomplish this, the ends of the rods *r''* are connected by means of vertical rods *r'''* with the spider *W* above the plates. A lever *W'* is pivotally connected with this spider, having its fulcrum upon a post *t*, which projects upward from the platen. The rear end of the lever *W'* is connected by the rod *t'* with an eccentric *a* upon the shaft *P*. The rotation of this shaft corresponds with the number of im-

pressions. Consequently by placing the eccentric in the proper position the gripping device is made to hold the paper against the impression-plate to receive the impression and release it when it is to be drawn forward by the feed-rolls. A suitable cutting-off blade Y is placed at the end of the frame and is operated by the bifurcated lever Y', with which it is connected by a pitman w. The lever Y' is fulcrumed at one side of the frame, and is connected at its opposite end with the grooved cam w' upon the shaft P. It will be observed that the feeding-rolls U and U' are mounted upon an adjustable carriage that may be moved upon the main frame, together with the cutting-blade, by means of screws to suit the distance it is desired to feed forward the paper at each imprint.

As it is sometimes desirable to use a sheet wide enough for two or more imprints, rotary shears Z are placed in front of the feed-rolls U U'. The shafts upon which these shears are applied extend beyond the frame of the press at one side a sufficient distance to allow of their being moved endwise on the shaft out of the path of the paper when it is desired to have the imprint take up the full width of the same. These rotary shears are driven, like the feed-rolls U and U', by miter-gears from the shaft V, and consequently have the same movement as said rolls.

As it is sometimes desirable to print the paper upon both sides, a means is provided for so doing by removing the adjustable table A', at the end of the machine and substituting in place thereof the devices shown in Figs. 13 and 14 of the drawings. These consist of a friction device similar to that employed at the opposite of the machine to retard the forward motion of the paper before it is taken by the feed-rolls, suitable brackets X' for carrying said friction device, and the shafts upon which the paper is to be rolled, which shaft is revolved by the belt y from a suitable pulley y' upon the driving-shaft B of the machine. After the paper has passed through the press and wound into a roll, said roll is transferred to the supports of the roll Q and allowed to again go through the press, the opposite side of the paper from that which has already been printed being submitted to the action of the type.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. In a printing-press printing from a roll of continuous paper, the combination, with the continuously-rotating rolls R R' to receive the paper, and the intermittently-rotating rolls T T' and U U' to carry the paper over the type-bed and about double the diameter of the rolls R R', of the intermittently-rotating shaft V, connected to the shafts of the rolls U' and T' by bevel-gearing, and the shaft V', connected to the shaft of the roll R' by a fixed

bevel-gear on the end of the shaft V', and the loose ratchet-and-pawl-controlled bevel-gears q on the shaft of the rolls and engaging the fixed gear on opposite sides, substantially as specified.

2. The combination of the continuously-rotating rolls, the intermittently-rotating rolls, and a friction device secured to the frame of the machine between the continuously-rotating and intermittently-rotating rolls, and consisting of the brackets l, secured to the press-frame, the lower transverse bar, with its ends held adjustably in said brackets by set-screws, and the upper transverse bar parallel to the lower bar and attached thereto by the connections l' substantially as specified.

3. In a printing-press, the combination of the vertical reciprocating type-bed, the standard thereof having a suitable longitudinal slot in its lower portion, the main shaft B, passing through said slot, the cam a, mounted on the main shaft in the slot and bearing upward against an anti-friction roller journaled within the slot, and the cams a', mounted on the shaft B and bearing downward against anti-friction rollers mounted on the shaft journaled in the type-bed standards, by means of which cams both the upward and downward movement of the type-bed is rendered positive, substantially as specified.

4. In a printing-press, the combination, with the main frame having the lugs b' provided with threaded perforations, and the standards C' of said bed moving in guides in the main frame and having longitudinal slots in its lower portion, of the main shaft B, the guide-rods b, the externally-threaded nuts engaging the perforations in the lugs b', the spring surrounding the rods b between said nuts and the type-bed, and the cams a', mounted on the main shaft in the slot in the standard and bearing upward against a suitable anti-friction roller, substantially as specified.

5. The combination, with the type-bed and type-bed-guide standards, of the guide-rods b, the externally-threaded nuts sliding on said guide-rods and engaging in threaded perforations of the lugs b' of the main frame, and the coiled springs surrounding the guide-rods between the said nuts and the type-bed, substantially as specified.

6. The combination of the vertically-moving type-bed, its balance-springs, the cams for raising said type-bed and making the impression, and the cams for withdrawing the same arranged as shown and described.

7. In a printing-press, the combination, with the main frame, inking-rollers, and operative mechanism therefor constructed substantially as described, of the slotted table G, the ink-well G', the plate g, secured thereto and set by an adjusting-screw, the rotatory ink-roll I, the rotatory inking-cylinder J, and the

vibratory ink-distributing roller I', all constructed and arranged substantially as and for the purpose specified.

8. In a printing-press, the inking-cylinder and slotted stationary table, in combination with the traveling distributing-rolls, the rotating inking-disks, and stationary table upon the opposite side of the machine, as set forth.

9. In a printing-press, the combination, with the main frame, the operative mechanism, and inking-rollers actuated thereby, all constructed substantially as described, of the cylinder J, the roll I, having a ratchet at one end, the ink-well provided with the adjustable plate g, the vibrating roll I', the pivoted vibrating lever K', the reciprocating rod K, the oscillating frame J', upon which the roll I' is mounted, the adjustable sleeve h, mounted on the rod K, the anti-friction roller h', mounted on the oscillating frame to engage said sleeve, the swinging lever L, connected to the rod K, the pivoted lever L', provided with pawl to engage the ratchet on the roll I, and a suitable link-rod connecting the levers L L', all constructed and arranged substantially as and for the purpose specified.

10. In a printing-press, the combination, with the platen and impression-plate, of the spider W, the rods r<sup>2</sup> with their upper ends secured in perforations in the ends of the arms of the spider, the rods r' with their end parts inserted in openings in the lower ends of the rods r<sup>2</sup>, the plates r, laterally adjustable on the rods r<sup>2</sup>, and mechanism, substantially as described, whereby the spider and its attachments are automatically raised and lowered at the proper times, for the purpose specified.

11. In a printing-press, the platen and its impression-plate, in combination with the parallel gripping-plates engaging opposite sides of the paper, the lever by which said plates are carried, and the eccentric driven by the shaft P, which gives motion to the lever and actuates the gripping-plates, substantially as set forth.

12. In a printing-press, the combination, with the main frame, inking-rollers, and operative mechanism therefor, of the rotating inking-cylinder passing out of a slot in the inking-table C, the inking-roll M', turned by contact with said cylinder and equal in length to the cylinder, and the reciprocating distributing-roll M, about one-half as long as the cylinder, turned by contact with the roll M' and moving back and forth on its shaft by means of the screw-grooves in said shaft, and the swiv-

eled nut or rider z', traversing said grooves alternately in opposite directions, substantially as specified.

13. In a printing-press, the combination, with the reciprocating rack and shaft V, operating the intermittently-revolving feed-rolls, of the shaft V' and its connecting-gear for operating the continuously-revolving rolls, as set forth.

14. In a printing-press, the vertically-reciprocating type-bed and its slotted standard, in combination with the main shaft passing through said standard, the cams for raising the standard and type-bed, and the cams for drawing down the same, all arranged and operating as shown and described, to give a positive movement to the type-bed, as set forth.

15. In a printing-press, the combination, with the main frame, inking-rollers, and operative mechanism, all constructed substantially as described, of the table II, the central rotating disk having a shank projecting inward from its center, the annular disk having a sleeve that surrounds the shank of the central disk and provided with the annular ratchet k, the loose bevel-gear O<sup>2</sup>, the bevel-gears O O', secured, respectively, to the sleeve of the annular disk and to the shank of the central disk, the reciprocating rod K, and the spring-controlled pawl k', pivoted on a bracket adjustably secured to said rod and engaging the ratchet k, substantially as specified.

16. The combination of the shaft P, having the slotted crank m on one end, the pitman m', having at one end a swiveled block adjustable in the slot of said crank, the rack n, attached to the other end of said pitman and moving in suitable guides, the shafts V V', the gear wheel or pinion n', loose on the shaft V' and engaging the rack n, so that it is moved thereby alternately in opposite directions as the rack reciprocates, the ratchet moving with the pinion n' and moving the shaft V at intervals in one direction only, and the pinion n<sup>2</sup>, meshing with the pinion n', and consequently moving the shaft V', to which it is attached, alternately in opposite directions, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID I. ECKERSON.

Witnesses:

G. BURROUGHS,  
N. DUMONT.



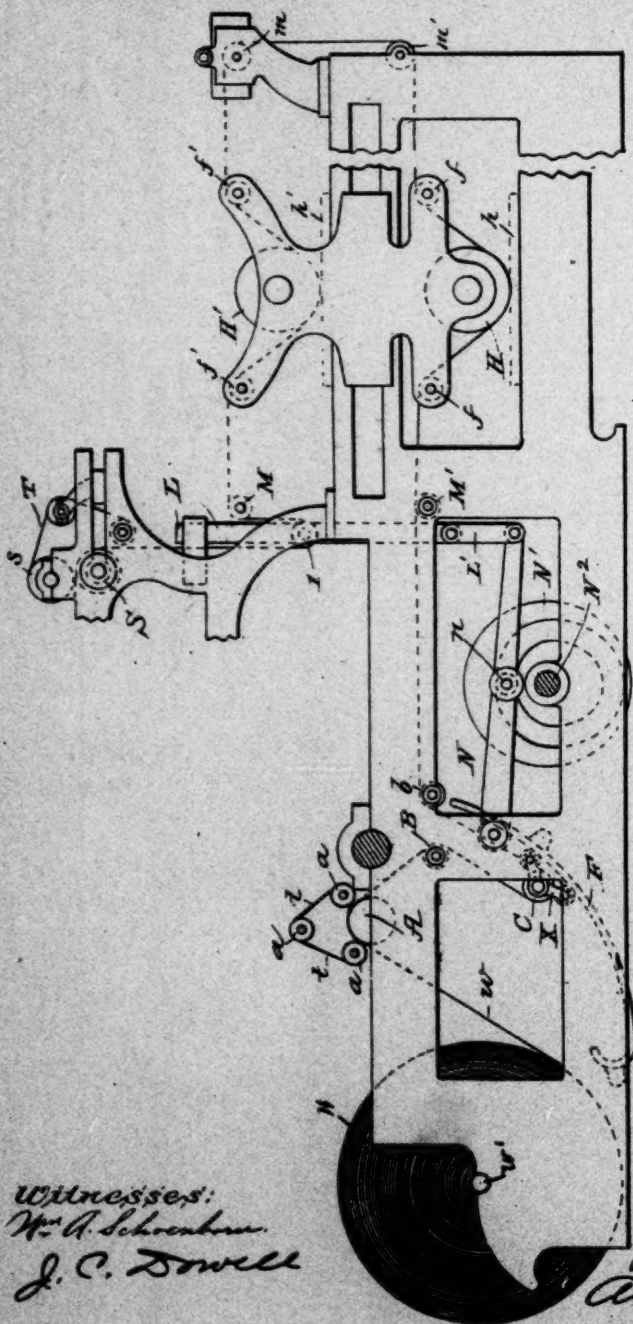
(No Model.)

J. L. COX.

WEB FEEDING DEVICE FOR PRINTING PRESSES.

No. 508,814.

Patented Nov. 14, 1893.



Witnesses:  
Wm. A. Schreiner  
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Inventor:  
J. L. Cox  
by  
Alexander & Sons  
Attys.

# UNITED STATES PATENT OFFICE.

JOSEPH L. COX, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE DUPLEX PRINTING PRESS COMPANY, OF SAME PLACE.

## WEB-FEEDING DEVICE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 508,814; dated November 14, 1893.

Application filed December 8, 1892. Serial No. 454,277. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. COX, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Web-Feeding Devices for Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to web printing presses, and its object is to provide an improved system of feeding the web through the press so that it may be positively and continuously drawn from the paper roll into the press and positively and continuously delivered both during and after the making of an impression thereon, and it is especially designed for use in connection with such presses as are shown and described in Letters Patent of the United States, granted to me as follows: No. 459,813, dated September 23, 1891, and No. 478,503, dated July 5, 1892.

The drawing represents a diagrammatical side elevation of a perfecting press, illustrating the improved web feeding and shifting devices.

The type beds *h*, *h'* are arranged parallel, one over the other, and the impression cylinders *H*, *H'* co-operate therewith. The web is led in from the feed roll, over a feeding and looping device hereinafter described, to and over a web guide roller *M'*, then between the cylinder *H* and bed *h*, to and under a guide roller *m'*, up over a guide roller *m*, back between cylinder *H'* and bed *h'* to and over a roller *M*, then under a looping roller *l*, all substantially as in Patent No. 478,503 aforesaid, and then up over a delivery roller *S* over which it is drawn by coacting rollers *s* and coacting tapes *T*, substantially as set forth in my Patent No. 459,813. The cylinders and the web guide rollers *f*, *f'* are preferably reciprocated over the bed by means not shown, substantially for instance as described in my aforesaid patents. The web looping roller *l* is journaled in reciprocating bars *L* which are connected at their lower ends by links *L'* to the free ends of vibrating levers *N* which are pivoted at their other ends to the main

frame, and are provided at an intermediate point with a wrist pin *n* which enters a cam groove in a wheel *N'* journaled on a suitably driven shaft *N<sup>2</sup>* by which means the levers are vibrated. This mechanism is substantially the same in construction and operation as that which is fully shown and described in my application for Letters Patent, Serial No. 444,318, filed August 27, 1892, and need not be further described herein.

The web *w* of paper is led from the roll *W* which is mounted in supports *w'* to a feed roller *A* over which it is drawn by means of coacting tapes *t*, *t'*, running over rollers *a*, *a'*. The coacting tapes *t* operate substantially like the delivering tapes *T* and are driven continuously during the operation of the press by any suitable mechanism as belts or gearing from any suitable source of power, as from the main shaft. The drive mechanism for said tapes is not shown, for its construction is not part of present invention, and can be readily supplied and understood by any one skilled in the art. From the feed devices the web is led over a roller *B* journaled on the main frame under a governor roller *C* and then over a roller *b* journaled on the frame beside roller *B* to roller *M'*. The web is thus looped under the governor roller *C*, which as shown is journaled in a wheeled carriage *X* traveling up and down on curved bars *F* attached to the main frame constructed substantially like that described in my Letters Patent No. 370,321, of September 20, 1887, and therefore a more detailed description thereof is unnecessary. This governor roller *C* is a gravity roller, and takes up any slack of the infed web during the taking of an impression, and maintains the tension of the web by its weight. It may be otherwise mounted or guided provided it is left free to take up the slack in web.

The operation of the press is similar to that of the press in Patent No. 478,503, but in place of a positively actuating looping roller, I employ the idler gravity governor roller described, and different feed and delivery mechanism.

The parts are so adjusted that the amount of web positively drawn from the roll *W* and fed into the press by the feed devices, and

the amount of web positively drawn out of the press by the delivery devices will be equal. While the impressions are being taken, the web is nipped between the beds and cylinders and is of course held thereby, but during this time the roller *l* is raised at such a speed that the loop of web thereunder is paid out to the delivery fast enough to prevent tearing of the web, and at the same time the governor roller *C* (which is supported by the loop of web thereunder) descends and takes up all the web fed in during the taking of an impression, holding the web always at a constant and uniform tension. As soon as the impression is taken the roller *l* is drawn down and in so doing pulls forward through the press and over the beds the amount of web which was infed and taken up by roll *C* during the taking of an impression. This amount of web in connection with what is at the same time fed out by the delivery is enough for an impression plus margins.

By the employment of coaxing tapes, rupture of the web is prevented, if for any reason travel of the web is hindered in its course through the press.

As the above described systems of feeding may be applied to various forms of presses, I do not limit myself wholly to the employment thereof only with the presses indicated and herein described.

Having described my invention, what I claim as new, and desire to secure by Letters Patent thereon, is—

1. The combination in a printing press of two type beds arranged one over the other, and two cylinders cooperating therewith for producing an impression, a positively operated web feed, and a gravity governor roller

adapted to take up slack between the feed and printing mechanisms, and web guide rollers with a web delivery mechanism, and a positively operated web looping roller interposed between the printing mechanism and the delivery and supported independently of the web, all constructed and arranged to operate substantially as described.

2. The combination in a printing press of mechanism for taking an impression, and web guide rollers, a continuously acting delivery mechanism, a positively reciprocated web looping and shifting roller between the printing mechanism and the delivery, a positive web feed, and a gravity governor roller, interposed between the feed and printing mechanism, and running on curved ways, adapted to take up slack in and tension the web, substantially as described.

3. The combination of two type beds arranged one above the other, two cylinders co-acting with said beds, and web guide rollers for directing the web successively between said beds and cylinders; with a continuously acting web delivery mechanism, a positively reciprocated web looping and shifting roller between the printing mechanism and delivery, a positive web feed, and a gravity governor roller interposed between the feed and printing mechanism, and running on curved ways, adapted to both take up slack in and tension the web, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

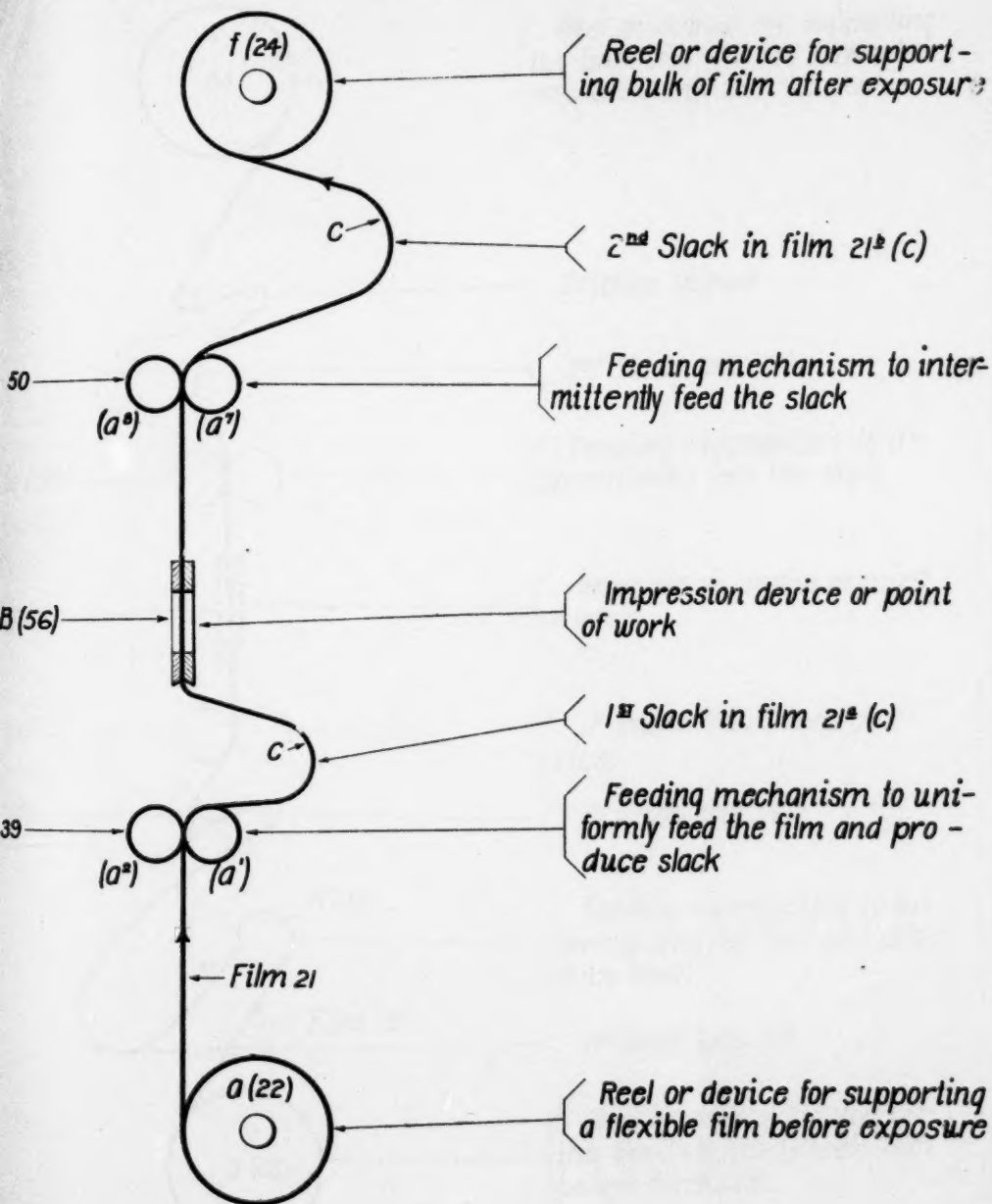
JOSEPH L. COX.

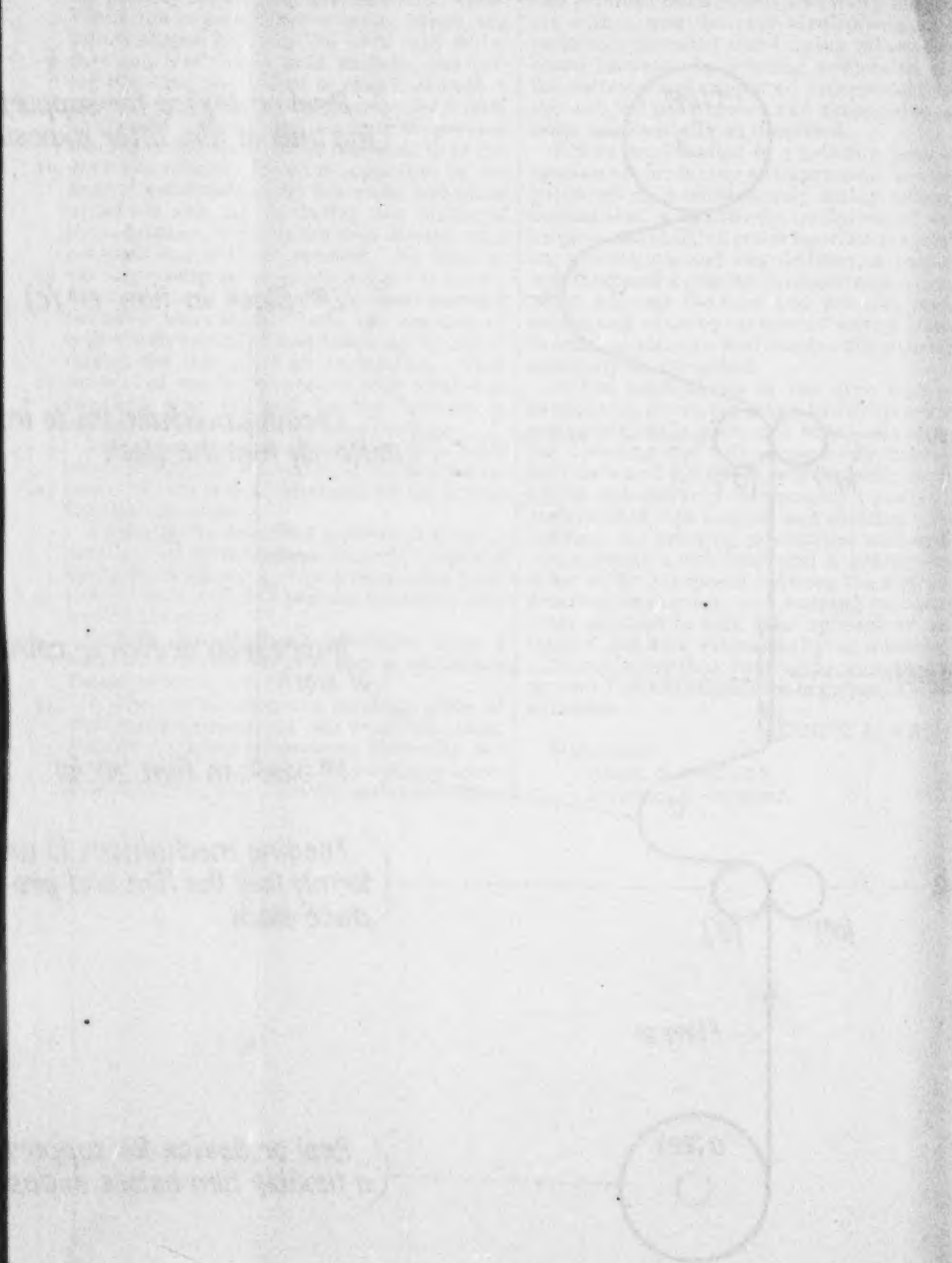
Witnesses:

ALEX. S. STEUART,  
ARTHUR E. DOWELL.

## DEFENDANTS' EXHIBIT No. 8

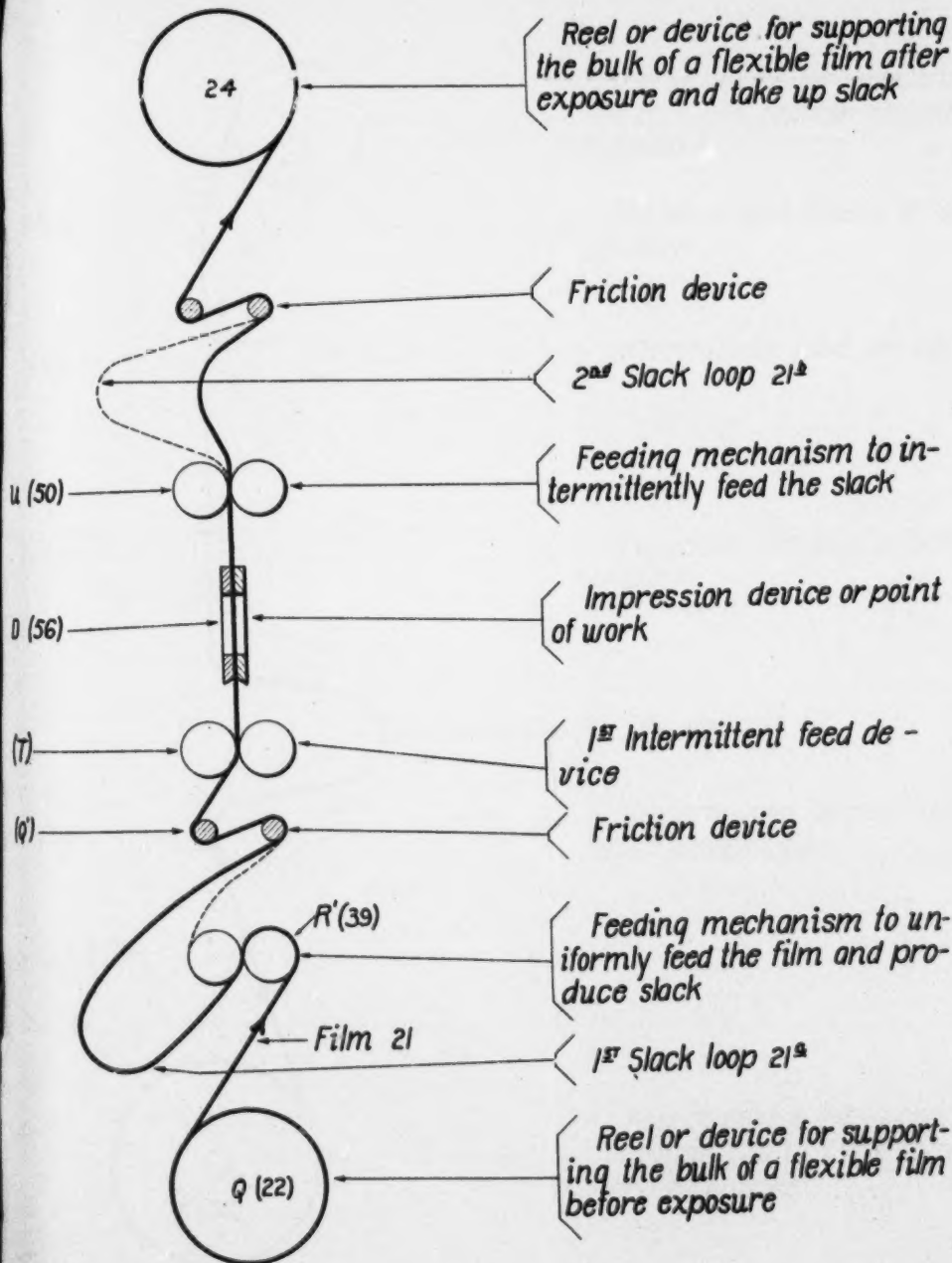
## Diagram of Kidder Pat. 224440





## DEFENDANTS' EXHIBIT No. 9

## Diagram of Eckerson U. S. Patent 433776



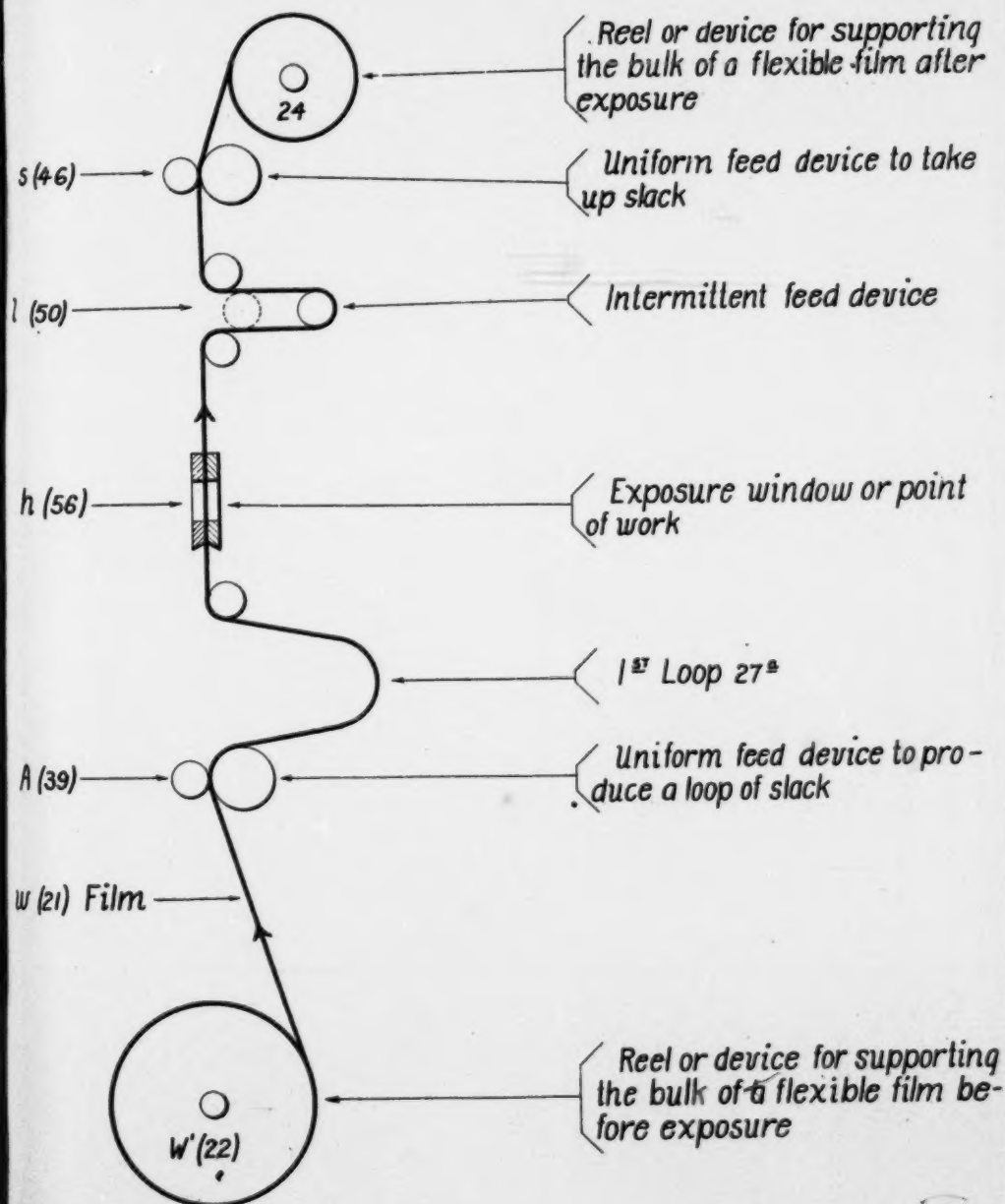
1140



# DEFENDANTS' EXHIBIT No. 10

Cox Patent 508814

1141



(No Model.)

3 Sheets—Sheet 1.

A. LE PRINCE.

METHOD OF AND APPARATUS FOR PRODUCING ANIMATED PICTURES  
OF NATURAL SCENERY AND LIFE.

No. 376,247.

Patented Jan. 10, 1888.

Fig. 1.

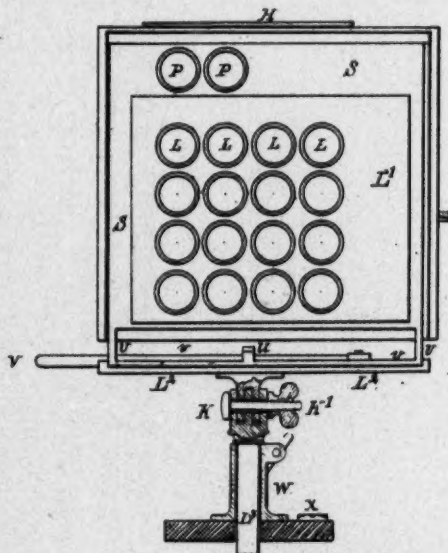


Fig. 2.

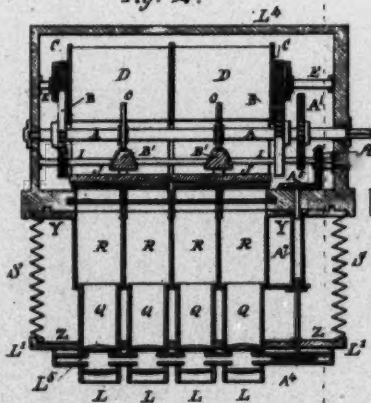
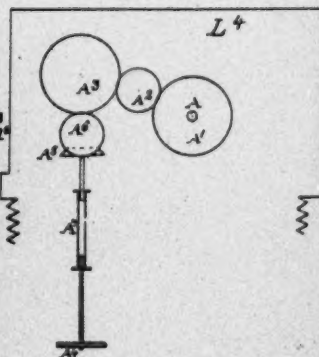


Fig. 2A



WITNESSES:

*John H. Reamer*  
*Edw. J. Smith*

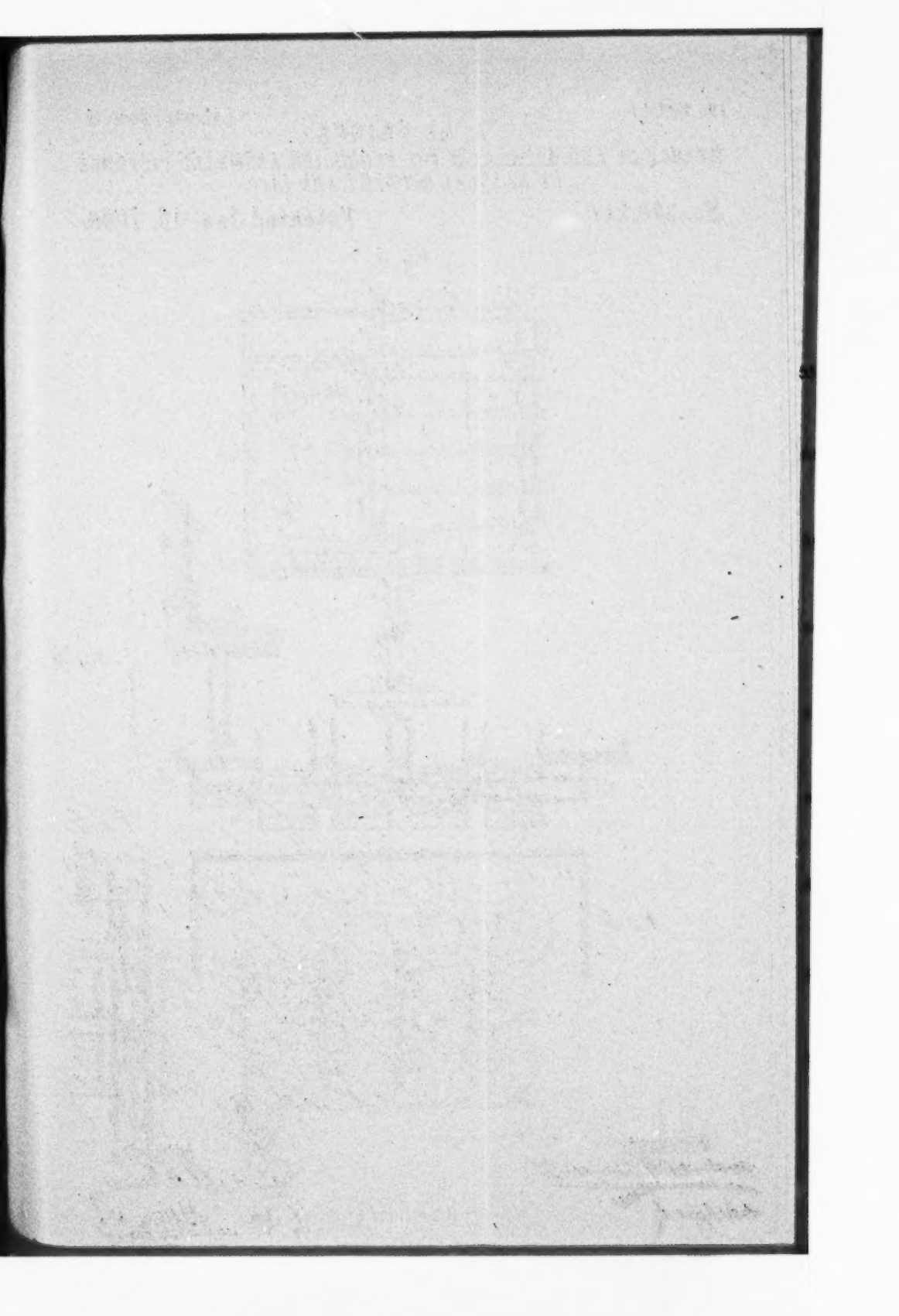
INVENTOR:

*A. Le Prince*

BY

*Munn & Co.*

ATTORNEYS



(No Model.)

3 Sheets—Sheet 2.

A. LE PRINCE.

METHOD OF AND APPARATUS FOR PRODUCING ANIMATED PICTURES  
OF NATURAL SCENERY AND LIFE.

No. 376,247.

Patented Jan. 10, 1888.

Fig. 3.

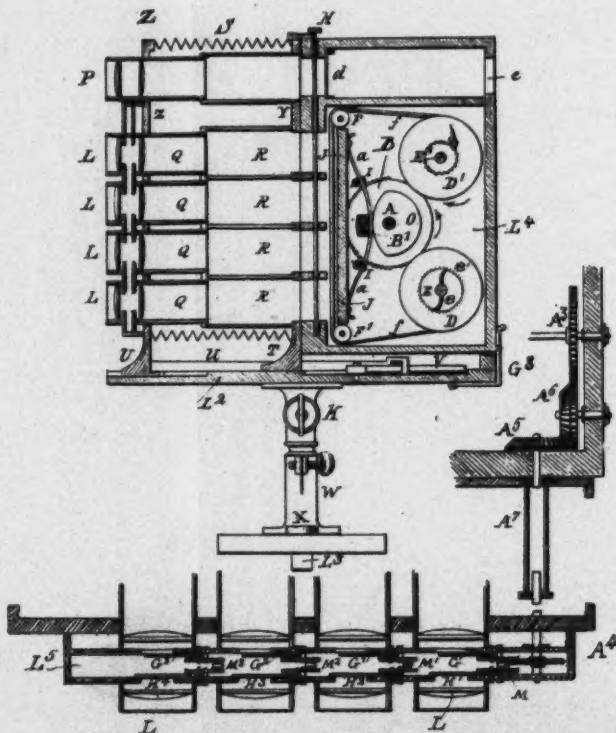
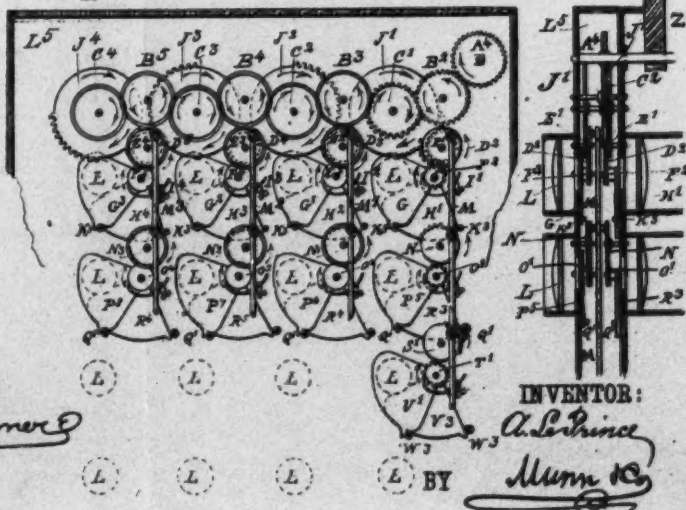


Fig. 4.

Fig. 6.

Fig. 5.

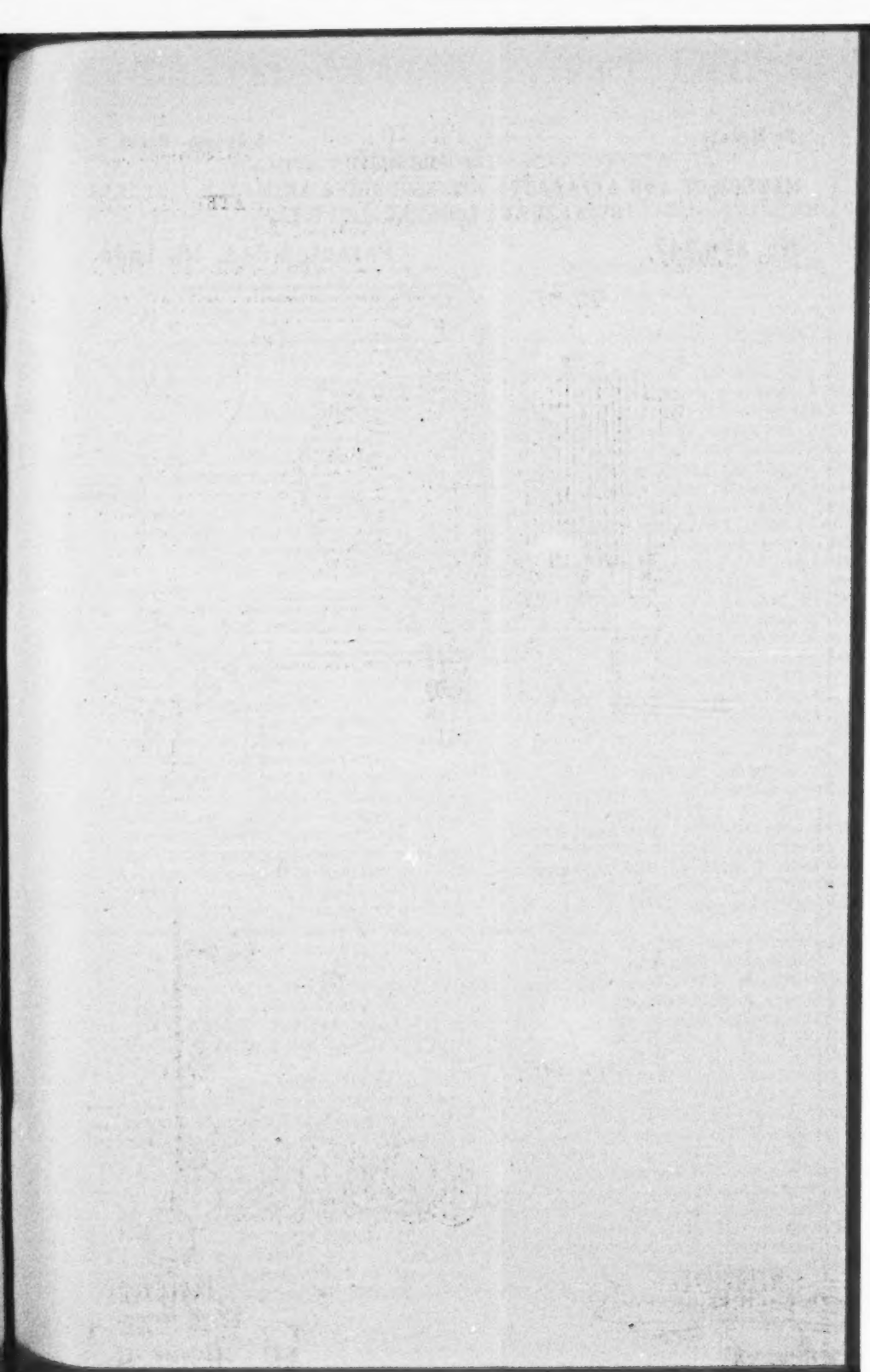


WITNESSES:

*John H. Reamer*  
*Edw. J. Quinn*

INVENTOR:

*A. Le Prince*  
*Munn & Co.*



(No Model.)

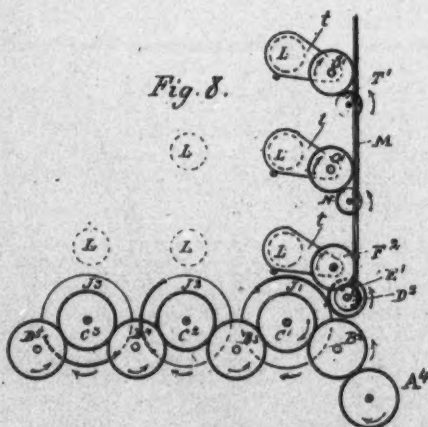
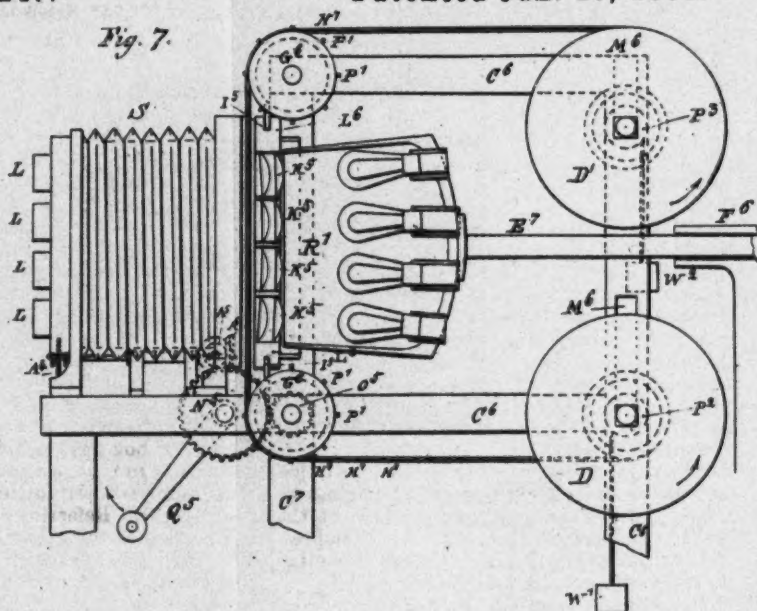
**3 Sheets—Sheet 3.**

A. LE PRINCE.

**METHOD OF AND APPARATUS FOR PRODUCING ANIMATED PICTURES  
OF NATURAL SCENERY AND LIFE.**

No. 376,247.

Patented Jan. 10, 1888.



**WITNESSES:**

John H. Baumer  
to Sadgurof.

**INVENTOR:**

Ch. Le Prince  
Maurice H.

BY

# UNITED STATES PATENT OFFICE.

AUGUSTIN LE PRINCE, OF NEW YORK, N. Y.

METHOD OF AND APPARATUS FOR PRODUCING ANIMATED PICTURES OF NATURAL SCENERY AND LIFE.

SPECIFICATION forming part of Letters Patent No. 376,247, dated January 10, 1888

Application filed November 2, 1886. Serial No. 917,889. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTIN LE PRINCE, of the city, county, and State of New York, have invented certain new and useful Improvements in the Method of and Apparatus for Producing Animated Pictures of Natural Scenery and Life on Glass, Canvas, or other Prepared Surfaces, of which the following is a full, clear, and exact description.

In order to carry out my method I provide an apparatus consisting of a receiver or photo-camera and a deliverer or stereopticon adapted to throw the transparent pictures obtained by means of the said camera or receiver in the same order and time in which they were taken, as will be hereinafter fully described and claimed.

The transparent pictures thrown in quick succession on a finely-ground plate glass or other suitable material will produce on the eye of the spectator the same effect or impression as the objects themselves when in motion in front of the "camera-receiver."

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front view of the receiver, showing a set of sixteen lenses, L, set in the shutter-box L', fixed upon the front of bellows-camera S, resting on bed L' and sliding on feet U by means of lever V. The lower part shows a section of the knee joint K and friction-socket W with air-level X, allowing the camera to revolve on spindle L' and to be fixed at any angle backward and forward by thumb-screw at K'. The two lenses P at the top are the focusing-lenses, and H the shutter in motor-box.

Figs. 2 and 2<sup>a</sup> represent a sectional plan view and detail of the receiver, showing in the lower or front part the lenses L of objective provided with tubes Q, sliding in square boxings R, so as to allow focusing. In the upper or back part the supply and motor box L' is shown, the motor-shaft A, with half gear-wheels B B, transmitting alternatively the motion through gear-wheels C C to lower drums, D D, loose on shafts B E, and through wheel A' and gear-wheels A' A' and cog-wheels A' A' (shown in Fig. 2<sup>a</sup>) transmitting motion through socket

A' to gear A' in shutter-box L'. (Detail in enlarged Figs. 4, 5, and 6.)

Fig. 3 is a sectional side elevation of receiver, showing the above, and more particularly the supply-drum D, storing-drum D', with film f, guided over rollers F F in front of pads J, faced with cloth or rubber, and pressed alternately against the film by blocks B', pressed by cams O and released by springs a, fixed to the back of pads J and to the rods I, running across and fixed in sides of motor-box L'. It shows also the section of focusing-lenses P with glass screens d and peep-holes e, and the action of focusing-lever V and rod u in moving forward and backward the front part of objective. The spring hasp G' holds the motor-box tight against the objective and allows one to take it off readily and replace it with another after full exposure of the film or drums D. Referring again to Fig. 2<sup>a</sup>, this is a section of the motor-box through y y in Fig. 2, showing transmission of power from main shaft A to wheels A' A' A' and cog-wheels A' A' to socket A' and wheel A', Figs. 4 and 5, and giving motion to the shutters in box L', Figs. 4, 6, and 7.

Fig. 4 is an enlarged sectional plan showing the transmission from shaft A to wheel A', but the section through the lenses is lower down, and shows only the position of shutters G G' G' G' and H' H' H' H' and connecting-rods M M' M' M'.

Fig. 5 is an enlarged front elevation of the system of shutters with transmission from wheel A' to runners B' B' B' B', gear-wheels C' C' C' C' and quadrant mutilated gear-wheels J' J' J' J' to double pinions, and quadrant mutilated gear-wheels E' and D', E' and D', &c., to double shutters G H', G' H', G' H', G' H', with springs I' I' I' I' to bring them to first position as soon as bog-teeth D' D' D' D' leave off. It shows also, rods, M M' M' M' transmitting motion vertically from shutter to shutter for each set of lenses.

Fig. 6 is an enlarged sectional side elevation showing the double sets of mutilated wheels J', also double pinions and mutilated wheels D' E' and pinions F', with their shutters G H', and stop-pins K', together with the crank-pins connecting the double quadrant mutilated gear-wheels D' H', &c., with the connecting-rod M.

Fig. 7 is a side elevation of the deliverer, the objective being the same as in the receiver only shows the outside frame and bellows S. The back part is in section through center, and shows the film transparencies mounted on two metallic ribbons punched with holes H', fitting on pins P', driven in guide-rollers G' G', stored on drums DD', loose on shafts with square ends, and lying in grooves M' M' provided in frame-work C'. The weights and small cables W' W', rolled on small pulleys P' P', fixed on drums D and D', secure the tightness and steadiness of the films. At the back of the films is the reflector R', with sixteen or more incandescent lights held by rod E', sliding in socket F'. In front of reflector are a set of sixteen double condensers, K' K', throwing the light through the sixteen pictures, and mounted on a frame, L', grooved at P', so they may slide in and out laterally on frames C' when required. The guide-roller G' carries a pinion, O', gearing in wheel N', fixed to frame C', and provided with crank Q' or any other device to transmit power.

Fig. 8 is a diagram showing the special disposition of shutters, the same as in Fig. 5, but arranged for long exposures, the dark lines showing the full gearings and the cogs on mutilated gear-wheels.

A suitable subject having been found, the photo-camera or receiver is brought in front and focused. The receiver is composed of three parts: first, the objective; second, the supply and motor-box; third, the stand.

The objective is a system of three, four, eight, nine, sixteen, or more lenses of equal focus secured in a vertical brass plate or frame, Z. Two light brass plates fixed in front of Z form a boxing, in which the instantaneous shutters work automatically, as explained hereinafter. The drawings show an objective of sixteen lenses. On the back side of the plate Z each lens is provided with a light brass boxing, Q, sliding in and out of a corresponding set of brass partitions, R, slightly larger and fixed on the front side of the back plate, Y. The other four sides of the box S are made of rubber bellows, so no light can penetrate except through the lenses. The back plate, Z, is provided with sixteen square openings, and securely fixed at T, Fig. 3, to a horizontal bed or board, L', provided with two slides or grooves, in which the lower corners, U, of the front brass plate, Z, can slide backward and forward by rack-and-pinion or lever action, to allow accurate focusing. Figs. 1 and 3 show lever V pressing on eye-hole in square rod w on transverse bar v, connected with corners or feet U U of front plate, and pushing or pulling it forward and backward, as required. Under the bed-plate L' is a knee-joint, K, allowing inclination backward and forward upon a strong rod, L', revolving in a friction split socket, W, fixed in the upper part of the stand, and provided with small spirit-level X, so that the objective may be inclined backward and forward, and, revolving upon rod L', be brought

to face any object around the operator without interference with the inner action of the motor-box or the focusing of the moving objects at various distances, while at the same time the verticality of the lateral sides of the pictures is maintained. The supply and motor box sits at the back of the objective by overlapping at top and sides of back plate, Y, of the objective, and is held in position by spring-lock G', hinging on plate L'. The front part is provided with sixteen openings corresponding to those in back plate, Y, of the objective, and a sliding shutter, H, closes communication of the whole set of lenses previous to exposing the films or removing the supply-box to dark-room.

The sensitive films are stored on the two lower drums, D D, set on spindle E, upon which they revolve independently as required, tension being secured by springs e, fixed through spindle B and pulling on teeth e', set in the inner circle of a ring fixed on the outer sides of drums D D, Fig. 3. From thence they are carried over small guide-rollers F F and F' F', Fig. 3, presenting a flat surface facing the lenses for exposure, and ultimately wind over an upper set of drums, D D', loose on upper spindle, E', and provided with gearing-wheels C C on their outer faces or disks. These wheels C C gear alternately with two mutilated gear-wheels, B B, Fig. 2, fixed on main motor-shaft A, passing through the box, and provided at one end with a square head to carry a crank for hand-power or for any other power, such as a weight and blocks, spring and clock-work, compressed air, electricity, &c. The length of the mutilated gear on wheels B B will be sufficient to pull in one revolution of the main shaft A a length of film equal or greater than the total height of the square openings in front of the lenses L. The shaft A carries, also, two cams, O O, Figs. 1 and 2, which press forward, during one-half of their revolution, two blocks, B' B', fixed on two springs, a a, held by screws on light rods I I, passing through the box. The springs are also fixed at their ends to two vertical pads, J J, a trifle wider than the films, so as to hold them flat and tight against the openings in front of box during exposure and release them immediately after, while the mutilated gears revolve drums D', alternately storing the exposed surfaces and bringing new ones in position to be operated upon.

On the left inner side of the power-box a set of cog-wheels, A' A', Figs. 2, 3, and 4, gears with main shaft A by wheels A' A' A' and transmits motion to the shutters in front brass box L' of objective by means of the cog-wheel shaft, which is square and revolves the socket A', in which the square shaft of wheel A', Figs. 3 and 4, commanding the shutters, may slide while the objective focus is altered during exposure, as may be required. The wheel A' gears with runners B' B' B' B' and wheels C' C' C' C', all alike. The latter are fixed to larger wheels, J' J' J' J', provided

with quadrant of cogs, each gearing successively on small pairs of wheels  $E' E' E' E'$ , having as many teeth as there are cogs. They are fixed themselves to larger pairs of wheels,  $D' D' D' D'$ , also provided with quadrant of cogs gearing with the double pinions  $F' F' F' F'$ , fixed on shutters  $G$  and  $H'$ ,  $G'$  and  $H'$ , &c., Figs. 5 and 6.

Four connecting-rods,  $M' M' M' M'$ , connect vertically the four sets of double shutters, and every one of the sixteen small pinions  $F', O', T',$  &c., is provided with a spiral spring,  $I' I' I' I'$ , &c., which brings the shutters back to first position, to pin  $K' Q'$ , &c., as soon as they are out of gear. So with the first quarter of a revolution of wheel  $A'$  cogs  $J'$  will work small wheel  $E'$  one revolution, and during the first quarter of that revolution cogs  $D'$  will work the pinions of shutters  $G$  and  $H'$ , so that  $G$  will be raised over lens-opening  $L$ , while  $H'$  comes up and closes it; but as the cog gearing on pinion of shutter  $H'$  has one, two, or three teeth less than that of shutter  $G$ , the pinion of shutter  $H'$  will be so much sooner out of gear and brought down by spring  $I'$ , giving the exposure, which is brought to an end by the subsequent fall of shutter  $G$ . The next quarter of a revolution of small wheel  $E'$  will, by means connecting rod  $M$ , work shutters  $P'$  and  $R'$  in the same way; then the third and fourth quarters will act on the other two lenses below, completing one of the vertical sets. The second quarter of revolution of wheel  $A'$  will act precisely in the same way upon the next vertical set commanded by cog  $J'$ , the third quarter on cog  $J'$ , and the fourth on cog  $J'$ . So, for each revolution of  $A'$ , Fig. 5, corresponding to one revolution of main driving-shaft  $A$ , Fig. 3, I have sixteen exposures; and, as during the second half of the revolution the film of the first drum has been replaced by a fresh length, the part acted upon being stored on upper drum, there is no interruption in the exposure, the slow speed of one revolution per second giving nine hundred and sixty pictures per minute. So several thousand may be taken with ease in the same time; and with drums of large diameter and a few store-boxes ready to fix behind the objective while the drums are removed and replaced in the dark-room it becomes possible to record, and by means of the deliverer to reproduce afterward, the aspect of any scenery, meeting, procession, races, &c., under fair conditions of light.

The stand, as already stated, is provided with a friction-socket,  $W$ , to receive the vertical rod  $L'$ , fixed to the bed  $L'$  of the camera. It is a strong telescopic tripod with a hook and chain fixed under the disk to increase its stability by a heavy weight or stone hanging near the ground.

In the deliverer, Fig. 7, of my apparatus the objective is the same as in the receiver, with the exception that the lenses  $L$  are a little farther apart and convergent toward a point at the distance required to show the picture,

the shutters are single, and the mutilated wheels are provided with twice as many teeth, so as to give full exposure and no interruption between the successive pictures, Fig. 9. The store box is replaced by a reflector,  $R'$ , and frame-work  $C'$ , provided with at least as many incandescent electric lights as there are lenses and sliding backward and forward through socket  $F'$  by means of rod  $E'$ . Between this reflector and the film a frame,  $L'$ , containing the condensers  $K'$ , is brought in position by means of slides  $P' P'$  in uprights  $C'$ .

The transparencies are adjusted on a pair of endless metallic ribbons accurately punched with small round holes  $II'$ , in which fit the pins  $P'$ , fixed on the driving and guide drums  $G'$ , so that after having been wound around drum  $D$  they are pulled and brought in position alternately by the action of gearing-wheels  $N'$  and crank  $Q'$ .

The drums  $D$ , fixed on uprights  $C'$ , let out the transparencies rolled on them, as required, and they are received on rollers  $D'$  after exposure. All the while the transparencies are kept tight on both rollers by weights  $W' W'$ , hanging on cables wound on pulleys  $P' P'$ , fastened on one end of each drum. The shutters are also worked by wheel  $N'$  through cog-wheels  $A' A'$  to wheel  $A'$ . The shutters are single and work similarly to those of receiver, as shown in diagram Fig. 8.

For subjects requiring fewer pictures and admitting repetition—such as waves, cascades, &c.—the drums are replaced by two polygonal disks,  $A' A'$ , Figs. 9 and 10, and supported by frame  $N'$ , which may be fixed bodily on frame  $C'$ , Fig. 7. The disks are divided geometrically into as many segments as one-fourth the total number of transparencies constituting the pictures. They are caused to revolve as explained in description of Figs. 9 and 10, and will be thrown successively on the screen by the revolution of quadrant-opening  $R'$ , so as to require a set of four lenses, the reflector  $R'$  requiring only a corresponding number of lights and condensers—i. e., four.

The sensitive film for the negatives may be an endless sheet of insoluble gelatine coated with bromide emulsion, or any convenient ready-made quick-acting paper, such as Eastman's paper film. The exposure will be given as described and development carried out as usual, care being taken to mark the negatives in their regular order before cutting them when required.

The sensitive film for the transparencies or positives must be on a transparent flexible material—such as gelatine, mica, horn, &c.—for the larger deliverer with drums. They may be thin glass for the disks of smaller deliverers. Once well developed and toned, the transparencies will pass through the hands of artists, who will tint them in transparent colors, dyes, or lacquers, as the subject may require, and they will be ready for mounting and adjusting between the metallic ribbons,

which will bind them together for the larger deliverer, or in the slides provided at the outer edge of disks for the smaller deliverer.

When the animated pictures to be taken are of long duration, the receiver has to be provided with one or more supply and motor boxes, to be fixed to the back of objective as soon as the films on supply-drums of the first box are exhausted. These may then be taken to the dark-room or tent and have new drums fixed by an assistant, while the operator attends to the receiver.

By the process and with the apparatuses described I am enabled to take at regular intervals any number of successive pictures of the same objects in motion, and practically to produce during any length of time as many and more pictures than the quickest eye could detect in the same period of time in looking at the objects themselves, and with the deliverer carry out or complete any process and reproduce and reconstitute such flying pictures in the same order and period of time in which they were taken, producing upon the eye of the spectator at any other time or place the very same effect or impression produced at the time of taking the photographs with the receiver.

It is obvious that the details of the mechanism forming my apparatus might be greatly varied without departing from the spirit of my invention.

I do not claim the particular construction of the stereopticon or deliverer in this application, as I propose making the same the subject of a separate application.

By my invention I am enabled to take negatives of any object or objects at intervals, regular or irregular, and with or without short or long interruptions, and at the slowest or most rapid speed, regular or irregular, as may be wanted, attaining several thousand per minute, and provision is made for moving the objective in any direction required—horizontally, vertically, or both simultaneously—and also to lengthen or shorten the focus while taking the pictures, the apparatus being essentially portable and self-contained, and independent of the objects or subjects of which it takes the pictures, and entirely under the control of the operator, and adapted to act equally well upon solid ground or moving platforms, such as boats, cars, balloons, &c.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A photographic receiver comprising a casing, a series of lenses therein, a series of shutters therefor, and connections between the said shutters for successively and continuously operating them at regular intervals, whereby negatives of the same object from the same point of vision may be produced upon a suitable surface, substantially as set forth.

2. The photographic receiver provided with a series of lenses, a series of shutters, and means for operating them successively and continuously, in combination with film-drums and means for operating them intermittently for moving the film in the dark-box, substantially as described.

3. The receiver provided with a series of lenses and shutters and means for operating them successively and continuously, in combination with the film-rollers, the pad J, and means for reciprocating it, substantially as and for the purposes set forth.

4. The combination, with the series of lenses and the series of tubes R, for receiving the lens-tubes Q, the latter held upon an independent frame, and means for moving said frame and lens-tubes out and in for changing the focus during successive exposure, in combination with the series of successively-operated shutters for closing the lens-tubes, substantially as described.

5. An apparatus for producing animated pictures and delivering the same upon suitable surfaces, comprising a photo camera provided with series of lenses and shutters and means for operating the shutters, and a deliverer or stereopticon provided with mechanism for delivering or throwing the pictures obtained by the camera mechanism upon a surface in approximately the same order and time in which they were received, substantially as set forth.

6. An apparatus for producing animated pictures, comprising a photo camera having the shutter mechanism and removable and interchangeable film-box and stereopticon-reflector, whereby the camera may serve the twofold purpose described, substantially as set forth.

AUGUSTIN LE PRINCE

Witnesses:

H. A. WEST,

C. SEDGWICK.

N° 10,131



A.D. 1889

Date of Application, 21st June, 1889

Complete Specification Left, 13th Mar., 1890—Accepted, 10th May, 1890

## PROVISIONAL SPECIFICATION.

**Improved Apparatus for Taking Photographs in Rapid Series.**

We, WILLIAM FRIESE GREENE, Photographer, of 92, Piccadilly, in the County of London, and MORTIMER EVANS, Civil Engineer, of Savile Club, Piccadilly, aforesaid, do hereby declare the nature of this invention to be as follows:—

Our Invention has for its object the formation of Photographic Pictures, and relates chiefly to the production of such pictures as are necessary to illustrate and register the movements of animals, insects or moving objects either taken singly or in masses as may be desired.

For this purpose we construct an apparatus by which with a single camera and lens a rapid series of such pictures may be taken and by which a series of fresh photographic sensitive films or portions of such photographic film may be substituted for those which have been exposed to the action of light with sufficient rapidity for the desired end.

To carry out our Invention we provide a main shaft which is actuated either by a winch turned by hand, clock-work or otherwise, to this shaft is attached wheel work and counter shafts by which the whole apparatus is driven and the necessary cycle of motions performed.

By the rotation of this shaft the prepared film is paid out and placed in position to receive the photographic impression and it is then automatically exposed to the action of light, the light is then cut off, and the exposed film is passed on and wound up on a receiving roller, fresh film being at the same time paid out to receive the succeeding impression which is after exposure again passed on and wound up as before. All these movements go on so long as the main shaft is rotated and there is film on which to operate, the number of such pictures being limited alone by the length or amount of film provided.

To provide for the production of many pictures such as would constitute a lengthened series of such pictures and to enable three hundred or more to be taken successively and in rapid series, we arrange a long roll of sensitive photographic film on one of the spindles or counter-shafts before mentioned and this spindle is so arranged that as it rotates under the driving action of the main shaft it pays out the film as fast as it is needed. To another spindle or counter shaft the free end of the film is attached, and the arrangement is such that by means of the main shaft this second counter shaft is caused to rotate in a reverse direction to that of the former or paying out spindle and its action consequently is to wind the film up as fast as it is paid out.

Intermediate of these two rollers or counter shafts we arrange an exposure screen over which the sensitive film passes on its way to the rolling up shaft and it is whilst the films rests on this exposure screen that it is subjected to the action of the photographic image.

As both paying out and rolling up rollers have a continuous motion communicated to them by the driving shaft and as it is desirable that the film during its exposure to the light should be at rest we provide an arrangement to effect this which is as follows. Immediately beyond the exposure screen and between it and the up-winding roller we place an intermittently acting drum of such a diameter and circumference as that each turn thereof will take up or roll forward the exact amount of film that is required for each picture, and in passing this film forward the drum also draws into the exposure position a fresh length of film ready to be exposed.

To effect this intermittent motion we provide the aforesaid drum with a single long escapement tooth which when the drum is not in motion rests on the cylindrical

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surface of a slotted pinion which gears into and is driven by the main shaft with a continuous motion. The slot in this pinion is so arranged that once only during each revolution of the pinion does it allow the escape tooth to pass and when this occurs the drum under the action of a driving spring with which it is provided makes one full turn when the escapement-tooth coming round again rests on the cylindrical portion of the slotted pinion as before.

The spindle on which the drum revolves also gears into and is driven with a uniform motion from the main shaft, and to this shaft is attached the one end of a coiled spring the other end of which is fixed to the inner circumference of the drum itself. As the spindle revolves this spring winds up and on the release of the escape tooth and drum the spring unwinds carrying both the drum and escape tooth with it. Thus the film is passed forward between winding and unwinding rollers at this point only with the necessary intermittent motion.

The constant uniform motion of the paying out spindle as it unwinds causes a certain uniform length of the film to pass forward towards the exposure screen when it collects into a kind of loop in readiness for use, it cannot, however, pass into the position for actual exposure until that portion of the film occupying such position has been withdrawn; as soon, however, as the detent tooth attached to the drum escapes through the slot in the pinion the drum makes a single revolution and in so doing both removes the exposed film from the screen and at the same time draws the loop of fresh film which has been gathering into the exposure position and at the same time passes forward the already exposed film into the form of another loop in readiness to be wound up on the winding roller, which being provided with a similar uniform continuous motion from the main shaft as the paying out roller proceeds gradually to wind up this loop so that it is wholly taken up by the time the escape tooth again rotates when a fresh loop of film is passed forward.

The shutter for exposing the film to photographic action is made in two portions each provided with an aperture or slot which in one position only allows the light from the lens to pass and it is only by the simultaneous action of these two shutters, that is, when the apertures in each coincide at a given moment, that any action of light on the film can take place.

One portion of this shutter is caused to revolve with a uniform motion as it is driven from the main shaft, the other portion is worked by a rocker or slide actuated by a cam. To this latter portion of the shutter is attached a spring with a tension screw to regulate its speed of action. In this way the duration of exposure is rendered entirely independent of the speed of the driving shaft, as by the turning of this screw a long or short exposure (within limits) can be ensured, whatever the number of exposures per minute may be.

The moment the aperture in the revolving shutter comes into position with the lens, the cam lets the sliding shutter go and by means of its attached spring the aperture in the sliding shutter also crosses and the exposure is effected.

The action of this shutter is so arranged that each exposure occurs simultaneously with the at-rest position of the drum escape tooth and the film on the exposure screen.

Dated this 12th day of October 1889.

DAY, DAVIES & HUNT,

321, High Holborn, London, W.C., Agents for the Applicants.

### COMPLETE SPECIFICATION.

#### *Improved Apparatus for Taking Photographs in Rapid Series.*

We, WILLIAM FRIESE GREENE, Photographer, of 92, Piccadilly, in the County of London, and MORTIMER EVANS, Civil Engineer, of Savile Club, Piccadilly, aforesaid, do hereby declare the nature of the said Invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This Invention consists in so arranging the mechanism of a camera so as to cause

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the cycle of operations necessary for the obtainment of a latent photographic representation or of a series of such representations, to be automatically effected in proper sequence, by means deriving their actuation from the rotation of a common shaft to which motion may be imparted by hand or by any other suitable means and so that such cycle of operations may be effected repeatedly so long as such shaft is kept in rotation and with a rapidity dependent upon that of such rotation, while allowing of the period of exposure being varied as may be required, the number of representations capable of being obtained being limited only by the length of the sensitized strip with which the camera is or may be provided.

The Invention is of special advantage in enabling such cycle of operations to be repeated in and with a single camera and lens in sufficiently rapid series to enable the obtainment of such representations of the consecutive movements of animals, insects and moving objects generally, whether singly or in groups; but the improved camera may also be used in obtaining a succession of photographic representations of different objects, taken at different times, on adjacent following portions of a sensitized strip.

In accordance with the Invention, let off and take up devices, which at each operation respectively let off and take up a portion of a sensitized strip of the length required for each representation, are combined with a device which at each operation advances into position for exposure to the action of the lens the portion of the strip supplied by the let-off device, and advances from the position of exposure towards the take-up device the portion of the strip lastly exposed, and which, between such times of operation, arrests the portion of the strip in position for exposure or allows of its being so arrested and with an exposure device which is timed to operate while the portion of the strip in position for exposure is arrested as aforesaid, but which can (if desired) be independently adjusted so as to regulate the period of exposure as may be required; and such devices are so connected to and operated by a common shaft as that the rotation thereof will cause the complete cycle of operations to be effected or to be caused to be effected repeatedly as long as such shaft is kept in rotation and there is sensitized strip on which to operate, and with a rapidity dependent upon that of such rotation.

The accompanying drawings represent an embodiment of our Invention in a camera suitable for taking photographic representations of quarter-plate size.

Fig. 1 represents a side elevation of the camera mechanism removed from the enclosing case.

Fig. 2 represents the same in plan view.

Fig. 3 represents a view in the plane of Fig. 1, partly in section and partly in elevation of the sensitized strip operating devices.

And Fig. 4 represents a sectional elevation through the plane indicated by the line, *a, b*, looking on the direction of the arrow, *c*, Fig. 2, illustrating an especially suitable arrangement of shutter mechanism.

5, represents the aforesaid common or main shaft upon the rotation of which the operation of all the parts is dependent. It is supported in opposite carrying frames, 6, but may be otherwise arranged, and may be rotated by a winch-handle inserted through a tubular light-shield, 7, inserted through the side of the enclosing case, 8, (part of which is indicated in dotted lines), and screwed on to the seating, 9, secured to the adjacent frame, 6. Or the shaft, 5, may be otherwise rotated as aforesaid.

10, represents a roll of any convenient length of sensitized paper or the like, 11, which passes from between such roll and a feed roller, 12, under a guide-roller, 13, between exposure screens, 14—15, between rollers, 16—17, to a take-up roller, 18, which derives its motion directly from the shaft, 5, and imparts simultaneous and a corresponding extent of motion to the roll, 10, through the roller, 12.

The roll, 10, can freely rotate on a supporting pin, 19, which is screwed into or otherwise suitably supported by the frames, 6. It is driven by frictional contact with the roll, 12, the surface of which is preferably roughened, and which in turn may be driven by frictional contact with the roll, 20, of the exposed strip, which accumulates

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on the flanged take-up roller, 18, or may be independently driven directly from the shaft, 5.

In the firstly referred to of such modifications, the roller, 12, is supported in slotted rocking bearings, 21, pivoted to the frames, 6, and it is borne into constant contact with the rolls, 20, 10, by springs, 22, which may, if required, be adapted with any suitable means of adjusting their tension, and are connected to lever arms, 23, which are also pivoted to the frames, 6, and when in operative position are borne against pins, 24, projecting from the frames, 6. The lever-arms can turn about their centres so as to permit of the roller, 12, being withdrawn from its bearings, 21, to facilitate the placing or removal of the roll, 10, or its core. In the secondly referred to of such modifications (illustrated in dotted lines in Fig. 3), the roller, 12, is supported in a fixed position on a spindle carried by the frames, 6, and is driven by the wheel, 29\*, from the wheel, 28, hereinafter referred to, at a surface speed which (by its frictional contact with the roll, 10, which is borne thereagainst by the arms, 23, which support it, and the springs, 22), will cause the roll to let off the length of strip required ready for each operation of the roller, 16. The roller, 12, may, however, be otherwise supported and actuated in any suitable manner.

The roller, 16, is mounted on a supporting pin, 24\*, which is screwed into or otherwise suitably supported by the frames, 6. It is driven by frictional contact with a split tubular hub, 25, projecting into the hollow axis, 26, thereof, *vide* Fig. 3, from a toothed pinion, 27, mounted on the pin 24\*, and which is driven from the toothed wheel, 28, on the shaft, 5, by suitably supported connecting gearing, 29, 30, by which it is caused to receive a relatively increased speed of rotation which is effective through the frictional contact of its hub, 25, with the hollow axis, 26, of the roller, 16, in causing the latter to take up the slack of the exposed strip immediately it is advanced by the operation of the rollers, 16, 17, as hereinafter described.

The roller, 13, is supported in the frames, 6, in position to guide the strip between the screens, 14, 15, and it can freely rotate in its bearings.

The exposure screen 14 is screwed to or otherwise suitably secured between the frames, 6, and is opaque, and prevents any light from reaching the sensitized strip behind it, and the screen, 15, is made with a through aperture, 31, of any desired shape and size, through which the photographic representation can be projected on to the portion of the sensitized strip supported between the screens. The screen, 15, is slotted at its base at, 32, to permit of its being set away from the screen, 14, to facilitate the adjustment of the strip, 11, when first placing it, or of its removal for replacement by a screen with a differently shaped or sized aperture, and to permit of its being subsequently secured in juxtaposition to the screen, 14, so that the strip can freely move between the screens, by set-screws, 33, working in a cross plate, 34, connecting the frames, 6. The screens, 14, 15, may, however, be otherwise suitably supported.

The roller, 16, is provided with end caps, 35, *vide* Fig. 2, and with projecting pointed discs, 36, and is made fast at the one end to an escapement tooth, 37, and is connected by a spiral spring, 38, *vide* Fig. 4, to a spindle, 39, by which the roller and such attachments are supported. The spindle, 39, is carried in bearings in the frames, 6, and has pinned thereon a toothed pinion, 40, which gears with the wheel, 28, and is continuously rotated from the shaft 5. The gearing, 28, 40, is so proportioned that one revolution of the winch-handle will effect two complete cycles of the herein described operations, but it may be otherwise proportioned. The pinion, 40, gears with another like-sized pinion, 41, fast on a spindle, 42, which is carried in bearings in the frames, 6, and carries a hollowed escapement hub, 43, on the circular circumference of which the tooth, 37, normally rests. While the tooth, 37, thus rests on the hub, 43, the roller, 16, remains stationary, and the portion of the strip, 11, between the screens, 14, 15, is arrested and the exposure is effected; and meanwhile the continuing rotation of the shaft, 5, causes the upwinding of the spring, 38, and the rotation of the hub, 43, the recessed part, 44, of which, once in each revolution, permits the tooth, 37, to pass, whereupon, the spring, 38, causes the

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roller, 16, to complete a revolution (the motion of the roller being then again arrested by the tooth, 37, again coming into contact with the circumferential part of the escapement hub, 43), which revolution is effective in advancing the strip, 11, the required length, advancing the exposed portion towards the take up roller, 18, and drawing the next following portion, let off from the roll, 10, into position for exposure, as aforesaid.

As each of the aforesaid operations of the roller, 18, is limited to the extent of the portion advanced by the said operation of the roller, 16, to be taken up, and as such advanced portion is equal to the length of the strip required for each of the said photographic representations, it follows, in the modification hereinbefore referred to, wherein the roller, 12, is actuated from the roll, 20, that the winding up of each such portion will cause the roll, 10, to simultaneously unwind a corresponding length ready for the next photographic representation, and that this will always occur notwithstanding the continually decreasing diameter of the roll, 10, and the continually increasing diameter of the roll, 20.

The roller, 17, is supported by lever arms, 45, which are pivoted at, 46, in the frames, 6, and it is borne against the end parts of the roller, 16, by adjustable springs, 47, hooked at, 48, to the frames, 6. It is formed with raised rims, 49, which prevent its intermediate part from injuring the sensitized face of the strip, and with intermediate grooves, 50, which allow of the projecting rims, 36, of the roller, 16, getting an effective hold of the edges of the strip. The roller, 17, may, however, be otherwise suitably supported, and it may be positively driven from the pinion, 40, at the same surface speed as the roller, 16, in which modification the edges of the strip will be nipped between two driving surfaces.

One or more of the points of one or each of such discs, 36, may be omitted to indicate the places where the divisions of the strip should subsequently be effected, if such should be required to be done before development of the latent photographic representations obtained.

The shutter or exposure device is, as aforesaid, timed to operate during each of the times the portion of the strip in position for exposure is arrested in such position. It is preferably composed of two reciprocating portions, 51, 52, both operated from the shaft, 5, but the latter of which, when released from the operation thereof, is independently and automatically operated for effecting the exposure, as hereinafter described.

The part, 51, serves principally as a light-screen, and reciprocates on a spindle, 53, supported by an end plate, 54, and is operated from the shaft, 5, by the bevil pinion, 55, pinned on the spindle, 39, gearing with a like-sized bevil pinion, 56, fast on a spindle, 57, which is supported in a bearing, 58, projecting from the adjacent frame, 6, and in the end plate, 54, and by a toothed pinion, 59, also fast on the spindle, 57, and which gears with a like-sized pinion, 60, supported by a stud, 61, projecting from the end plate, 54, and which pinion is made fast to a disc, 62, adapted with a projecting pin, 63, which engages with a slot, 64, in an arm, 65, which is made fast to the shutter, 51, such gearing being proportioned so that each revolution of the spindle, 39, imparts one complete reciprocation to the shutter, 51.

The shutter, 52, is made with an aperture, 66, and also rocks on the spindle, 53, and it is raised, together with the shutter 51, from the position indicated in full lines in Fig. 3 (where the shutter, 52, abuts against a rubber stop, 67,) to the position indicated in dotted lines (which position the shutters assume immediately preceding the moment of exposure) by the pin, 63, engaging with the arm, 65, of the shutter, 51, and with an arm, 68, made fast to the shutter, 52. Immediately the pin, 63, passes beyond the range of the arm, 68, the shutter, 52, is actuated by the contraction of a spring, 69, which is connected to an arm, 70, projecting therefrom, and its aperture is thus caused to cross an aperture, 71 (the position of which is indicated in dotted lines) made in the case, 8, and into which the lens is inserted, thus permitting of the necessary exposure of the then stationary portion of the strip, to the momentary action of the lens, immediately following the occurrence of which, both shutters, 51, 52, assume the positions indicated in full lines in Fig. 4.

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The speed of action of the shutter, 52, can be adjusted, as may be required, by regulating the tension of the spring, 69, which may be effected by means of a lever, 72, pivoted at, 73, to the end plate, 54, and to one end of which the spring is connected, the lever being capable of being set into different positions by a snail, 74, on a pin, 75, passing through the front of the case and operated from the exterior by a thumb nut, 76, adapted with an index and pointer, 77, so that any desired definite tension may be readily given to the spring for regulating the period of exposure as may be required.

The camera may, however, be adapted with any other suitable arrangement of shutter mechanism, operated from the shaft, 5, and so arranged as that it should be timed to operate at each of the times aforesaid.

78, represents a ratchet wheel, and, 79, a spring pawl, which prevent the shaft, 5, from being reversely rotated.

The whole of the aforesaid mechanism is enclosed in a suitably shaped case, the actuating handle (if worked by hand), the lens and the exposure regulator alone projecting or being visible from the exterior.

Having now particularly described and ascertained the nature of our said Invention and in what manner the same is to be performed, we declare that we claim as our invention:—

1. So arranging the mechanism of a camera as to cause the cycle of operations necessary for the obtainment of a latent photographic representation or of a series of such representations to be automatically effected in proper sequence, by means deriving their actuation from the rotation of a common shaft or its equivalent, to which motion may be imparted by hand or otherwise, with or without means for allowing of the period of exposure being varied as may be required.

2. In a camera, the combination of an intermittently opening shutter with mechanism for giving an intermittent movement to a sensitized strip, the whole being actuated from a common shaft or its equivalent, in such manner that the opening of the shutter takes place during a period of rest of the strip.

3. In a camera, in combination, a device which at each operation advances into position for exposure to the action of the lens a portion of a sensitized strip fed thereto and simultaneously advances from the position of exposure towards a take-up device the portion of the strip lastly exposed and which between such times of operation arrests the portion of the strip in position for exposure or allows of its being so arrested, an exposure device (which may or may not be capable of independent adjustment to regulate the period of exposure as may be required) timed to operate while the portion of the strip in position for exposure is arrested, and a shaft to which such devices are so connected as to be caused to operate in proper sequence upon the rotation of such shaft.

4. In a camera, in combination, a device which at each operation advances into position for exposure to the action of the lens a portion of a sensitized strip fed thereto and simultaneously advances from the position of exposure towards a take-up device the portion of the strip lastly exposed and which between such times of operation arrests the portion of the strip in position for exposure or allows of its being so arrested, and a shaft to which such device is so connected as to be caused to operate upon the rotation thereof.

5. In a camera, in combination, let-off and take-up devices which at each operation respectively let off and take up a portion of a sensitized strip of the length required for each representation, a device which at each operation advances into position for exposure to the action of the lens the portion of the strip supplied by the let-off device and advances from the position of exposure towards the take-up device the portion of the strip lastly exposed and which, between such times of operation arrests the portion of the strip in position for exposure or allows of its being so arrested, an exposure device (which may or may not be capable of independent adjustment to regulate the period of exposure as may be required) timed to operate while the portion of the strip in position for exposure is arrested, and a common shaft to which such devices are so

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connected as to be caused to operate in proper sequence upon the rotation of such shaft.

6. In a camera, in combination, let-off and take up devices which at each operation respectively let off and take up a portion of a sensitized strip of the length required for each representation, a device which at each operation advances into position for exposure to the action of the lens the portion of the strip supplied by the let-off device and advances from the position of exposure towards the take-up device the portion of the strip lastly exposed and which between such times of operation arrests the portion of the strip in position for exposure or allows of its being so arrested, and a common shaft to which such devices are so connected as to be caused to operate in proper sequence upon the rotation of such shaft.

7. In a camera, in combination, the spindle, 39, means for operating it, the roller, 16 and connecting spring, 38, the escapement-tooth, 37 the escapement-hub, 43, and gearing connecting the latter with the spindle, 39.

8. In a camera, in combination, the spindle, 39, means for operating it, the roller, 16, and connecting spring, 38, the escapement-tooth, 37, the escapement-hub, 43, and gearing connecting the latter with the spindle, 39, the let-off roll, 10, the take-up roller, 18, the connecting feed roller, 12, the shaft, 5, and gearing connecting the shaft with the rollers, 16, and, 18, respectively.

9. In a camera, in combination, the spindle, 39, means for operating it, the roller, 16, and connecting spring, 38, the escapement-tooth, 37, the escapement-hub, 43, and gearing connecting the latter with the spindle, 39, the let-off roll, 10, the take-up roller, 18, the feed roller 12, the shaft, 5, and gearing connecting the shaft with the rollers, 16, 18, and, 10, respectively.

10. In a camera, in combination, the automatically acting roller, 16, the frictionally driven roller, 18, the shaft, 5, and gearing connecting the shaft with such rollers respectively, substantially as and for the purposes set forth.

11. In a camera, in combination, the automatically acting roller, 16, the frictionally driven rollers, 18, and, 10, the shaft, 5, and gearing connecting the shaft with such rollers respectively, substantially as and for the purposes set forth.

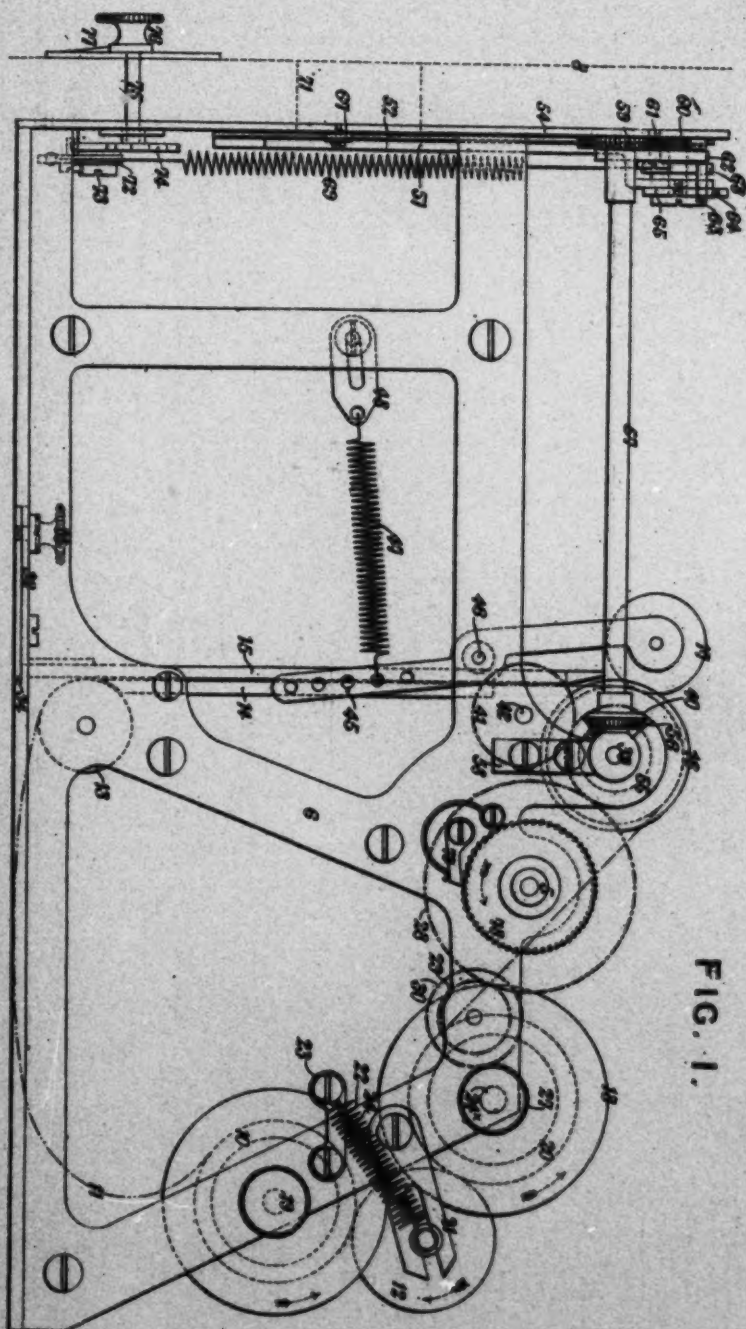
12. In a camera, in combination, the automatically acting roller, 16, the frictionally driven rollers, 18, and, 10, the connecting feed roller, 12, the shaft, 5, and gearing connecting the shaft with such rollers, 16, and, 18, respectively, substantially as and for the purposes set forth.

13. In a camera, in combination, the roller, 18, the shaft, 5, means for frictionally actuating the roller from the shaft, the roll, 10, and the connecting feed roller, 12, for frictionally actuating the roll, 10, from the roll, 20, substantially as and for the purposes set forth.

14. In a camera, in combination, the roller, 18, the shaft, 5, and means for frictionally actuating the roller from the shaft, substantially as and for the purposes set forth.

Dated this 1st day of March 1890.

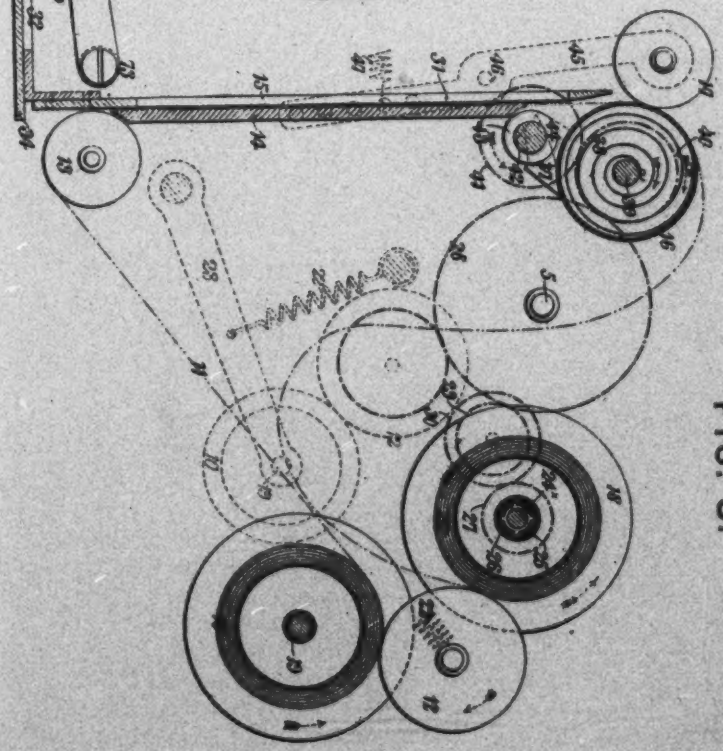
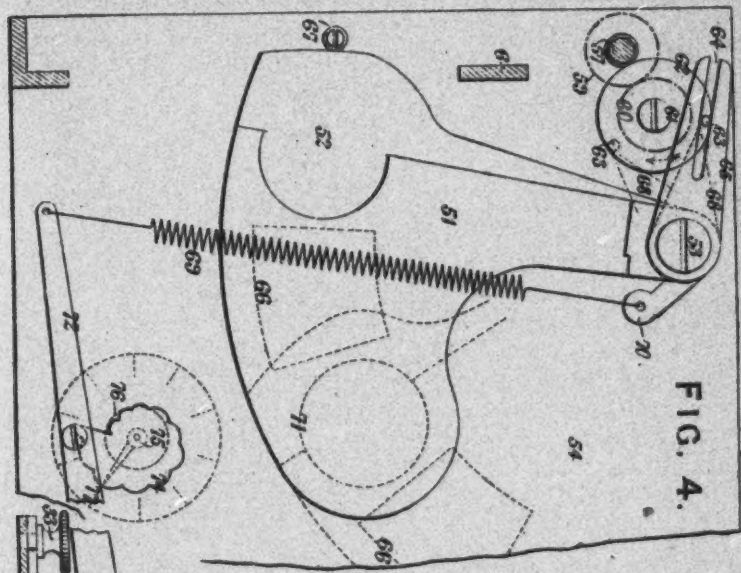
DAY, DAVIES & HUNT,  
321, High Holborn, London, W.C., Agents for the Applicants.





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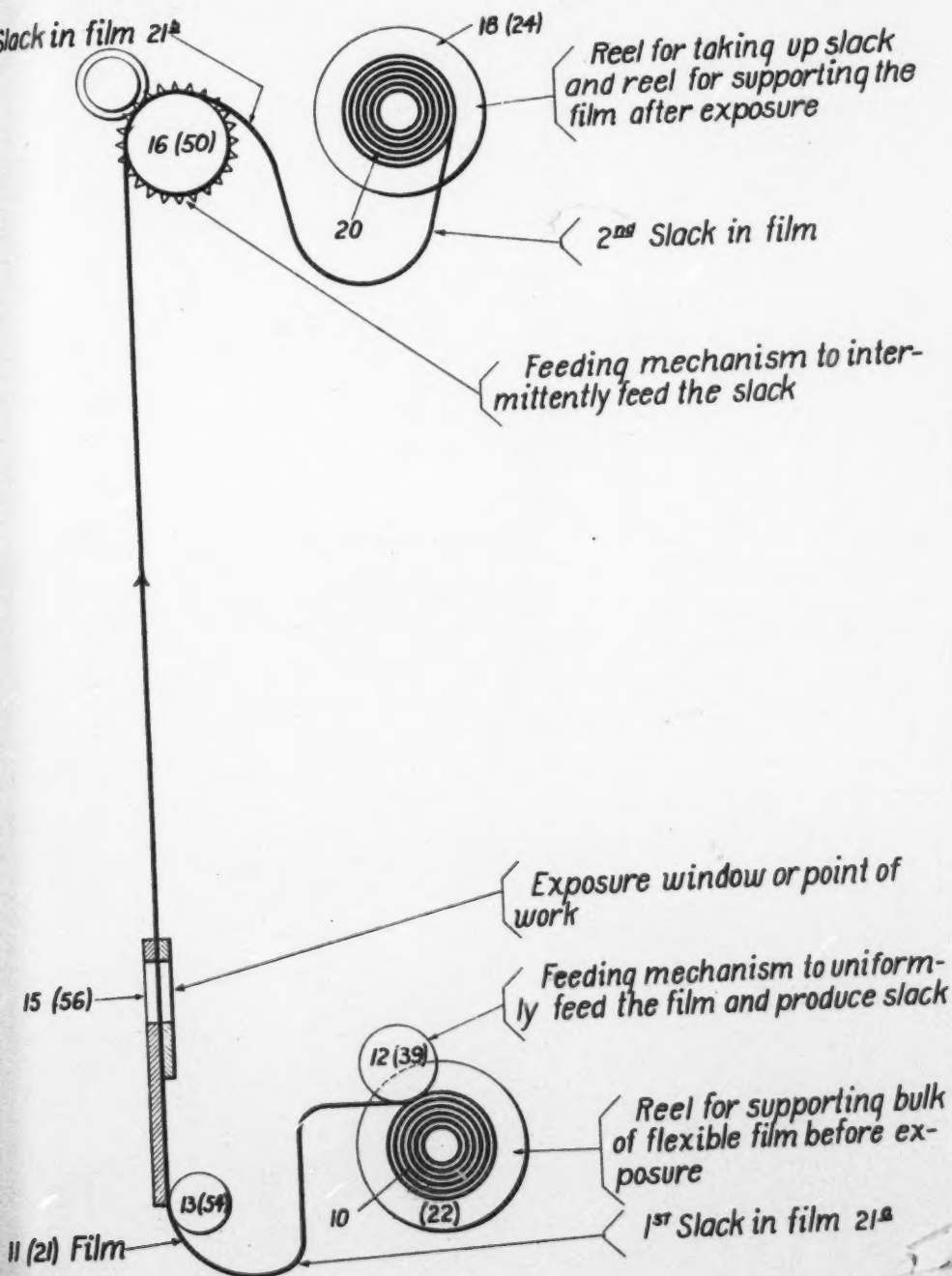
(3<sup>rd</sup> Edition)



1164

DEFENDANTS' EXHIBIT No. 13

Diagram of Greene & Evans British Pat. 10131 of 1889



1. The first part of the paper is devoted to a general discussion of the problem of the existence of a solution of the system of equations

$$\frac{dx}{dt} = f(x, y, z), \quad \frac{dy}{dt} = g(x, y, z), \quad \frac{dz}{dt} = h(x, y, z),$$

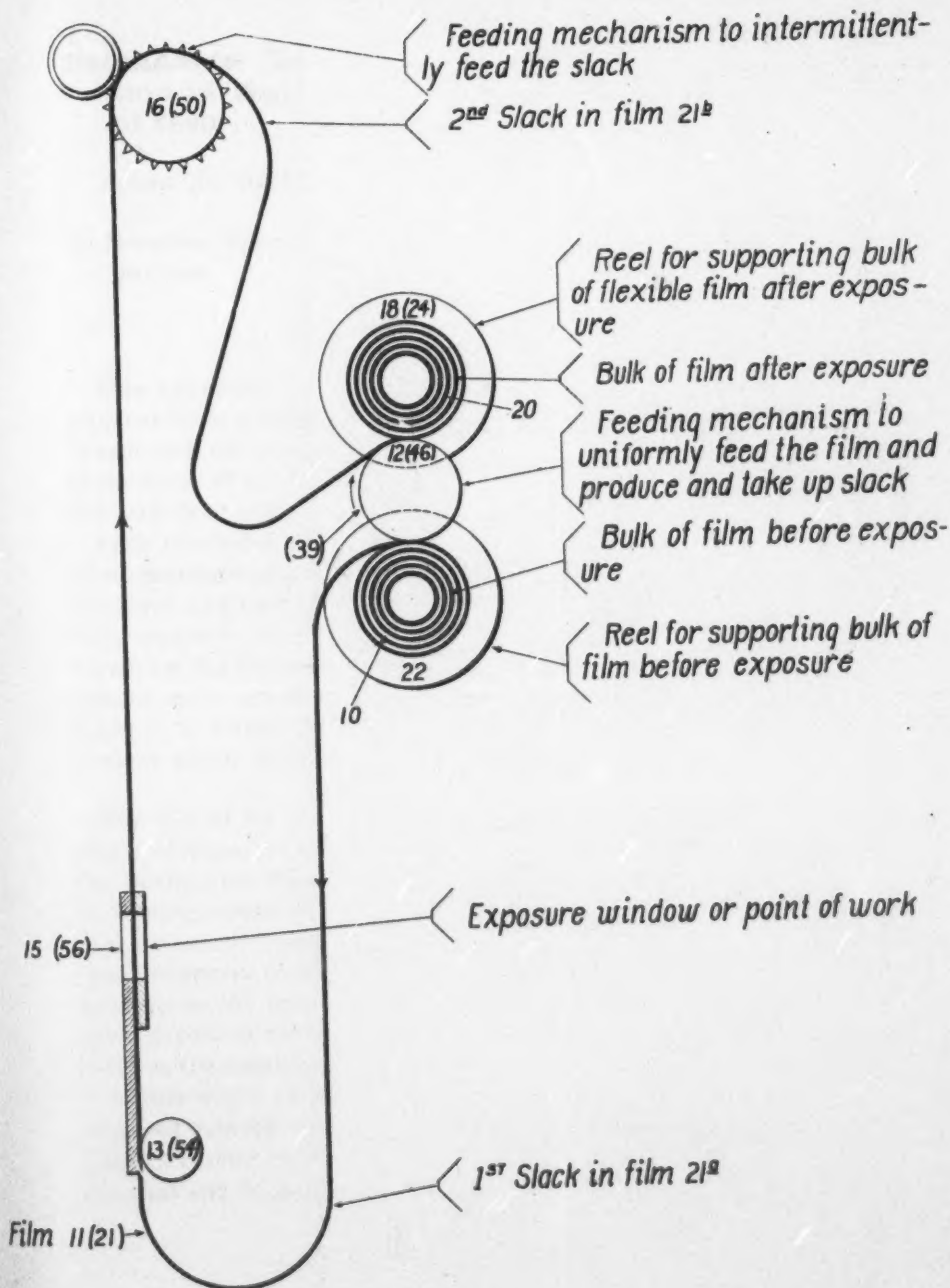
where  $f, g, h$  are continuous functions of  $x, y, z$  and satisfy the Lipschitz condition.

2. In the second part of the paper the author considers the case when the functions  $f, g, h$  are periodic with respect to  $x, y, z$ .

3. In the third part of the paper the author considers the case when the functions  $f, g, h$  are analytic.

4. In the fourth part of the paper the author considers the case when the functions  $f, g, h$  are linear.

5. In the fifth part of the paper the author considers the case when the functions  $f, g, h$  are quadratic.



**Defendants' Exhibit No. 16—Translation of Marey Patent, No. 208,617 of 1890.** 3505

Patent No. 208,617, Dated October 3d, 1890.

To Monsieur Marey, for a Photochronographic Apparatus.

**PLATE VII.**

This apparatus is arranged to take successive pictures upon a strip of sensitized film. This film is mounted on covered reels; it advances rapidly to the focus of the objective and is arrested during the periods of exposure. 3506

Each resolution of a movement into its parts by photochronography demands a long series of impressions and uses up a strip of film. It is, therefore, necessary, for each new set of impressions, to withdraw the film photographically impressed and replace it by another. This substitution can be made in a bright light by means of the covered reels of which the description follows:

Fig. 1.—At the end of each narrow strip of film strips of paper of the same width are pasted on. One of these extension strips is red, the other black, each being about 90 centimetres long. The band thus formed is wound in the dark room on a metal reel, the groove of which it fills exactly. After the winding-on the exterior of the reel shows superposed layers of black paper, the opacity of which protects the sensitized film from contact of light. 3507

In this way a certain number of stock reels are prepared covered on the outside with black paper which a rubber band keeps in place. In this state the reels can be handled in a bright light.

3508

In order to put them into the apparatus several turns of the black covering are unrolled, the end being attached to an empty reel, which we will call the *receiver*, and upon which there will be a fresh winding-on of the strip in proportion as it advances to the focus of the photographic objective.

Fig. 2.—Pressure-rollers guarantee the regular winding-on of the strip on the reels.

3509

When one set of impressions is finished the entire strip has passed from the paying-off reel to the receiving reel; the latter then exhibits on the outside the red color of the covering which in its turn preserves the film from the action of the light and permits its withdrawal without danger from the apparatus.

On account of these two different colors the reels which have received photographic impressions will not be mistaken for those which have not been used.

3510

In order to have clear pictures, it is necessary that the surface on which they are formed should be absolutely motionless during the period of exposure. Now, when a series of photographic impressions is taken at short intervals,  $1/10$  or  $1/50$  of a second for example, the sensitized film and the wheel-work that advances it must necessarily have a great velocity.

In order to produce the periods of arrestment of the sensitized strip it is not necessary to think of stopping the heavy members of the gearing, that would lead to destructive shocks. On the other hand, to arrest the film at one point, while the gear-wheels continue to draw it, would tear it.

I have met this difficulty in the following manner:

I arrange at the point *c* a pressing organ which,

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for a moment, holds the film stationary at the focus of the objective. In following the film beyond this point, towards the right, it is seen to pass over a light roller *r* mounted on the end of a very resilient spring blade, then it returns to pass between the rollers *l* which take and advance it with a uniform movement.

This circuit made by the film is quite long; now, during the moments when it is held in position for exposure the pull exercised below by the rollers *l* will have the effect of stretching tight the film and of bending the spring blade on which the passing over has taken place. In this way the path followed by the film will be made shorter and the rollers *l* will continue their pulling although the film has been arrested above. 3512

As soon as the pressing agent has ceased to act the strip moves again with great rapidity because the bent spring resumes its position.

There remains another important condition to be met: before the film begins to move it is necessary that the driving wheel-work should assume its uniform velocity.

In order to gain this result the film attached to the two reels and lying between the rollers *l* is not gripped there and is not pulled along. In reality the rollers consist of a driving cylinder and a pressure cylinder which is driven. At a given moment the latter presses the film against the driving cylinder. As long as this pressure does not exist the film does not advance. 3513

On the other hand, the receiving reel, if it turned all the time, would also draw along the film; this reel is stopped by means of a pawl, and the driving spindle which traverses it turns by friction in its interior.

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A pressure exercised on the one detent has the double effect of gripping the strip in the rollers, and of releasing the receiving reel. As soon as the strip begins to advance drawn by the rollers, and in proportion as it advances from them, it is wound up on the receiving reel.

This shows the necessity of the driving of the receiving reel by the friction of the interior spindle. This form of driving permits the reel to rotate with a variable speed, according to its changes of diameter.

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It rotates, in fact, very quickly at the beginning, when its core is only covered by several windings of the strip, and, on the contrary, rotates more slowly when it has increased in size by the winding-on of two or three metres of film. At this moment the spindle slips in the friction movement within the reel.

Fig. 3.—All the organs which have been described are contained in a chamber which is hermetically sealed and where external light cannot penetrate during the receiving of the impressions.

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In travelling from one reel to the other the sensitized film passes behind a window through which it receives the photographic impression. The width of this window is equal to the perimeter of the rollers, so that one rotation of these advances the strip the exact amount necessary to keep the pictures from overlapping, yet without permitting between them waste spaces.

A cam which turns at the same speed as the rollers causes, at every rotation of the latter, the pressing of the film in a way to hold it motionless for an instant.

The action of this cam is the following:

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Figs. 4 and 5.—A lever *l* pressed by a spring *r* falls into the notch of the cam and, by a bell-crank movement, controls the gripping of the film. Lastly, the axle of the cam causes the windowed disc to turn, which disc passes into the objective and admits the light at the same instant in which the film has been arrested.

In order to have very rapid exposures, I make use of two discs of which the one makes one rotation while the other makes five. The coincidence of the windows in the interior of the objective and the admission of light only takes place once during the five rotations. In this way with discs of small dimensions there is an exposure as short as with a disc five times larger.

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If it is desired to increase the number of impressions, for instance to double them, two diametrically opposite windows should be made in each of the discs. One should then, by means of a kind of diaphragm, reduce by half the width of the window by which light reaches the film. Finally, the film should be arrested twice during each rotation of the rollers.

To this end there is placed to the side of the first cam a second equipped with two notches suitably made in the axle. According to the number of impressions which it is desired to obtain the lever which controls the gripping of the film will be placed upon the one or the other cam.

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I have constructed various models of this apparatus: one with weights, another with a spring, still another with an electric motor. In this last one the gripping of the film was caused by a current from a battery and an electric-magnet. The moment of this arrestment as well as its duration were regulated by a friction contact set on the axle of the shutter-disc.

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The drawing gives an idea of the apparatus as a whole; the present model is run by a weight.

I claim then not only the arrangement just described, but every other which, by means of springs, electricity, or some other force, would have as its effect the advancing of a sensitized film to the position for exposure by arresting it at the right moment for taking the pictures.

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I also include in my claim the use of covered reels which permit the handling in a bright light of the extremely sensitive films that are to receive the photographic impressions.

I include in it lastly the different applications of this apparatus to the taking of successive pictures of a moving body, whether this body is seen at a great distance or whether it is placed at the focus of the objective for a microscope.

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Finally, I reserve for myself making such an arrangement of this apparatus that it can be used at the same time for photochronography on a fixed plate (method previously described, "Transactions of the Academy of Science," page 14, July 3, 1882), for photochronography on a moving film or paper, lastly for photochronography of microscopic creatures.

For this last end I make use of extremely concentrated light, capable of destroying in a few seconds the object studied, but which is only used intermittently and during periods of time not exceeding the  $1/1000$  or  $1/2000$  of a second.

208617  
 APPAREIL PHOTOCHRONOGRAPHIQUE,  
 PAR M. MAREY.

Fig. 3.

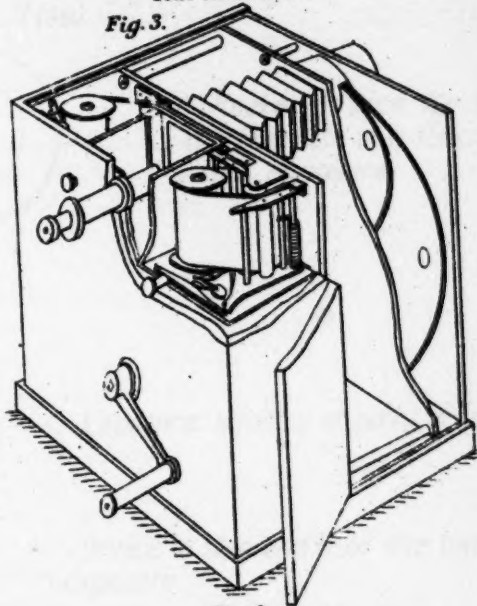


Fig. 4.



Fig. 5.



Fig. 1.



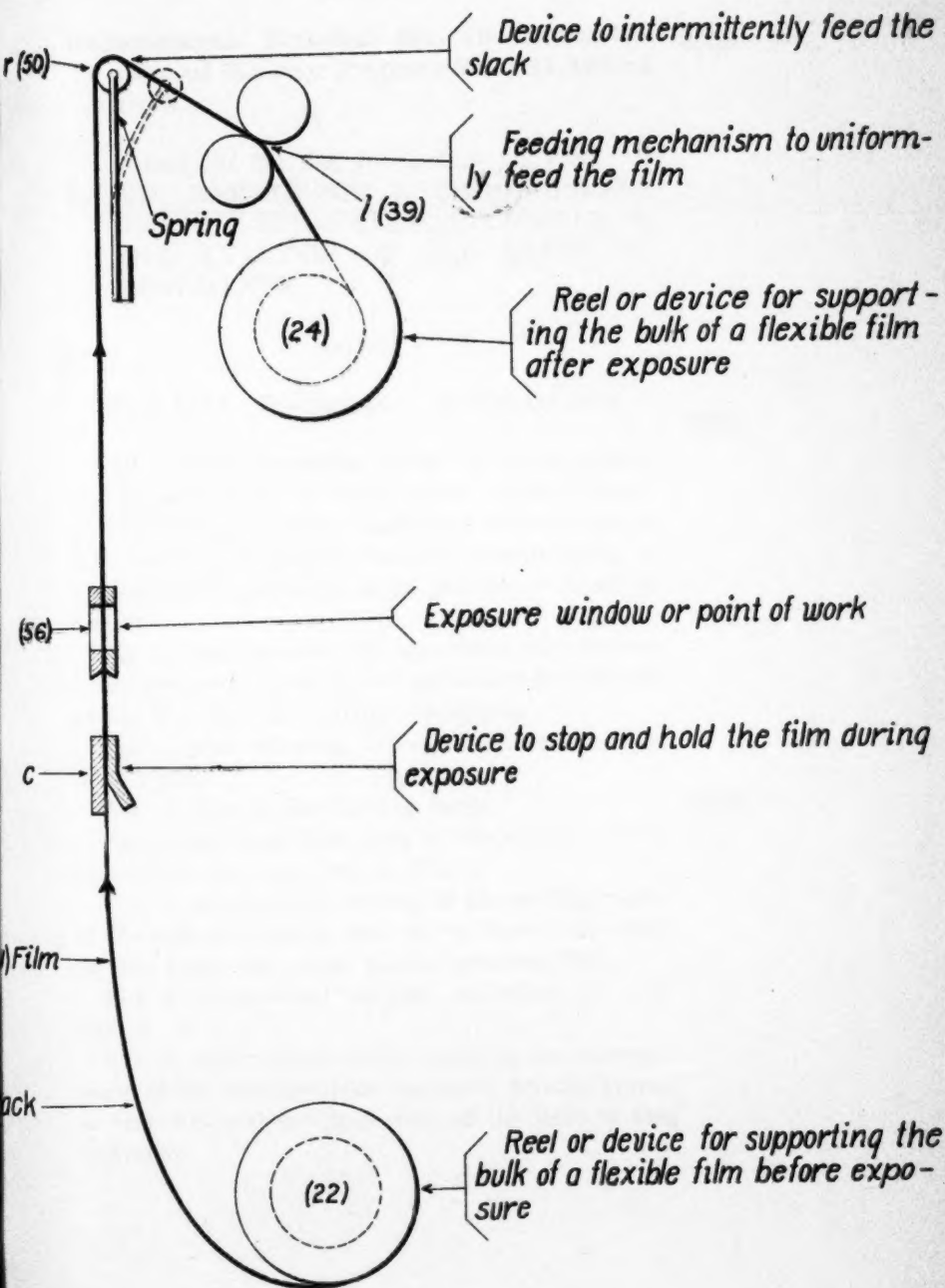
Fig. 2.





DEFENDANTS' EXHIBIT No. 17  
 Diagram of Marey French Patent 1890

1177



Energy is transferred from the

source to the system by means of

heat or work. The energy is then

used to do work or to heat the system.

Energy is then transferred from the

system to the surroundings by means of

heat or work.



**Defendants' Exhibit No. 19—Translation of Marey Patent No. 231,209 of 1893.** 3535

Patent No. 231,209, Dated June 29, 1893.  
 To MR. MAREY, FOR A CHRONOPHOTOGRAPHIC APPARATUS APPLICABLE TO THE ANALYSIS OF ALL KINDS OF MOVEMENTS.

(Extract.)

Plate VIII.—Photography. Industrial Arts. 3536

The present invention refers to an apparatus which permits the securing upon a mobile sensitive film strip, or upon a stationary sensitive plate, a series of photographic images corresponding to the successive attitudes of an animal or object in motion.

Fig. 1, rear view of the apparatus (the bottom being removed), showing the movement mechanism of the film and the driving mechanism.

Fig. 2, plan showing the movement mechanism of the film.

Fig. 3, plan of the driving parts. 3537

Fig. 4, internal front view of the bottom of the box which was removed in Fig. 1.

Fig. 5, longitudinal section of the driving parts of the disk-shutters in case where these disks shut off the light very close to the sensitive film.

Fig. 6, transversal section according to 1-2, Fig. 5.

Fig. 7, longitudinal section showing the arrangement of the shutter-disks and their driving parts, in case where these disks shut off the light in the objective.

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Fig. 8, section according to 3-4, Fig. 7.

Figs. 9 to 11, plan and elevation of the fixing device, i. e., the attachment which immobilises the film at each lighting period, and the driving cams.

Fig. 12, details of one of the cylinders J of the rollers JJ which unroll the film.

Fig. 13, details of one of the bobbins.

Fig. 14, unpolished glass frame for focussing in chronophotography upon stationary plate.

Fig. 15, frame receiving the sensitive glass in chronophotography upon stationary plate.

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Fig. 16, admission shutter substituted in place of photographic frame when operating upon mobile sensitive film.

This apparatus is based upon the unrolling of a sensitive film before a single objective which, upon each passage of a perforated shutter over a disk impelled with a rotating motion, allows the luminous rays to penetrate which make an impression on the part of the film which is, at that time, behind the admission shutter.

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In order not to receive the images upon a moving surface, which would decrease the distinctness thereof, I have arranged my apparatus in such a way that the film is automatically stopped at each lighting period.

All the parts of the mechanism which are necessary to the unrolling of the film are enclosed in the rear part of the apparatus at A. The sensitive film is rolled on a bobbin bored with a hole through its axis, serving for disposing the bobbin in the apparatus by engaging it in the vertical rod a; the extremity of the film is introduced in a slit made into another bobbin which is placed at B, the film following in the apparatus the path indicated by the mixed line a, C.D.E.F.G.H.B.

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In order to freely manipulate the filmy strips, introduce them in the apparatus and remove them in full daylight, I glue at the extremity of each sensitive film two strips of opaque paper. When the rolling up, which occurs in the photographic laboratory, is through, the bobbin can be brought into full daylight without fear of spoiling the film, as same is protected by the multiple thicknesses of black paper. At the close of the experiment, the film is recovered with a series of opaque paper windings; it is therefore possible to further manipulate the bobbin in full daylight.

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The bobbins are put in place as stated above, and a part of the opaque strip which precedes the sensitive film is unrolled, following the path indicated by the mixed line a, C.D.E.F.G.H.B.

The parts which assist in the unrolling of the film are all enclosed in the chamber A, Fig. 7.

a, axle on which the storage-bobbin is engaged, same being perforated to this effect by a longitudinal hole; after this bobbin is put into place, a hand manipulation is made upon the index  $I^1$  for lowering it, which disengages the piece  $I$ ; immediately thereupon, and under the action of the spring  $i^1$ , the axle  $I^2$ , the extremities of which end with the two friction rollers  $I^2$ , is applied against the coil engaged upon the rod a; these two friction rollers exert an equal pressure upon the storage-bobbin inasmuch as the axle  $i^3$ , which carries them, can oscillate around the piece  $i^2$  which connects it to the axle around which the spring  $i^1$  is wound. From the storage bobbin, the film passes upon the cylinder J which, as will be seen later, may be impelled by a rotating motion; at the required time, a second cylinder formed of two friction rollers  $J^1$ , is brought near the cylinder J, through the

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medium of a suitable mechanism; these friction rollers  $J^1$  are also mounted upon an axle  $J^3$  which can pivot around the axle  $j$  serving for bringing it near the drum  $J$ ; a spring  $j^1$  constantly tends to apply the friction rollers against the drum, Figs. 1 and 2, details Fig. 12.

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When coming out of the rollers formed by the cylinder  $J$  and the friction rollers  $J^1$ , the film passes behind an attachment which I shall call the *fixing device*. The purpose of this device is to compress the film, at each lighting period produced by the objective, against the partition  $K$  of the chamber  $A$ , so as to render the film stationary during the very short interval of time during which the film is impressed. This fixing device requires a special arrangement in order to assure the even pressure upon the film; it consists of a drum  $L$  mounted loosely upon an axle, the extremities of which are fixed in two squares  $L^1$  united to the pressure bar  $L^2$  which allows, in normal time, a sufficient space, between the partition  $K$  of the box  $A$  and itself, for the passage of the film.

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In order to fully understand this arrangement, it will be sufficient to refer to Figs. 9 to 11, observing, however, that the parts indicated in Fig. 11 are in reality behind the cam shaft of Fig 9; we only have separated them so as to represent them in a manner as complete as possible. Under the action of the springs 1 which lean against the pillar  $1^1$ , the pressure bar  $L^2$  is shifted from the partition  $K$ , and it is brought close to it for compressing the film only when one of the cams  $1^2$ , mounted upon the plate  $1^4$ , fixed to the shaft  $1^3$ , attacks and pushes the roller  $L$ ; when this phenomenon occurs, it can be seen that the bar  $L^2$  leans against the partition  $K$ , and owing to the

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agency of the drum L, the pressure is even on all points of the bar L<sup>2</sup>.

We shall see later on that the cams are arranged in such a way that they act upon the roller L and produce a stop of the film at the time when the latter is impressed. The film then passes between E and F into the division M, placed exactly opposite the objective; in the chamber M, which is behind the objective, an unpolished glass frame M<sup>1</sup> is arranged which may fall back against one of the partitions of the chamber M. For focussing, this frame is turned back by letting it pivot on its hinge n so that it is placed exactly according to E,F.

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From thence, the film travels upon the flexible blade N fixed to the pillar n; the purpose of this flexible blade is to give a certain amount of play to the film, so that it cannot tear under the action of the traction caused by the receiving coil which turns when the fixing device maintains the film during the posing time; in fact, if this flexible blade did not exist, it is obvious that the film, being maintained at D, Fig. 2, and drawn through the rotation of the receiving-coil B, would tear at each picture. This effect is prevented through the bending of the flexible blade. After having passed on the loose pulley H, which acts as a guide, the film finally reaches the receiving-coil, the fixing method of which I now shall proceed to explain.

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This receiving bobbin is placed by running it over the axle B, at the lower part of which a ratchet wheel B<sup>1</sup> is frictionally mounted, and which may be rendered stationary by the pawl B<sup>2</sup>. The receiving-bobbin carries, at its lower face, a series of holes b into which tenons fixed upon the ratchet wheel enter, so that, when the bobbin is put in

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place, it is solidarity with the rotation motions of the ratchet wheel B<sup>1</sup>; this ratchet wheel proper is fed only through the friction of the sub wheel, so that it is possible either to stop it or let it operate, as required, with the bobbin forming a part thereof, all this occurring through the manipulation of the pawl.

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Two friction rollers, arranged as the friction rollers I<sup>2</sup>, which maintain the bobbin in place while evening up the tension of film, lean against the receiving bobbin, as is the case for the storage-bobbin.

Without yet entering into a description of the shutter-disks which serve towards successively uncovering the objective and for allowing the light to arrive upon the portion of the film placed at E.F, I shall proceed to study in detail the operation of the film.

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The driving parts are above the chamber A, which encloses all the pieces of the film shifting mechanism. The axle O is acted upon by means of a crank, which axle, through the medium of the gearing O<sup>1</sup>, turns the barrel O<sup>2</sup> which, on its side, transmits the movement to the axles B and 1<sup>3</sup> through the medium of a series of gearings which are plainly shown in Figs. 1 and 3.

Thus, among the pieces of the mechanism enclosed in the chamber A, there are three pieces animated by a rotating motion, they are: The cam shaft of the fixing device, the axle B upon which the receiving bobbin is engaged, and the cylinder J of the rollers; of these three pieces, the first two directly receive their movement from the driving parts; the cylinder J turns under the action of the gearing P, one of the wheels of which is amounted upon the cam axle.

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Let us suppose: First, that the rollers  $J^1$  are brought apart from the cylinder J under the action of the spring j; Secondly, that the pawl  $B^2$  is in contact with one of the teeth of the ratchet wheel  $B^1$ , and let us see what is going to happen if we turn the lower crank Q.

The film will remain stationary; in fact, the pawl prevents the receiving bobbin from turning; it has, consequently, no action upon the film which cannot be advanced by the cylinder J, inasmuch as the friction rollers  $J^1$  do not compress the film upon the drum. The only apparent movement will be that of the fixing device which will periodically compress the film against the partition K. If, at this moment, a continuous pressure is made through the medium of a finger upon the tumbler Q placed on the side of the box A, the axle  $Q^1$  will turn by about one fourth of a circle, and the projections  $q, q^1$ , fixed upon this axle, will act, one of them upon the buffer with which the axle f is terminated, and which is connected to the friction roller shaft  $J^1$  for applying these rollers against the cylinder; the other one upon the tail of the pawl  $B^2$  for separating this organ from the teeth of the ratchet wheel.

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The film will immediately shift in the direction of the arrow and will be rolled on the receiving bobbin, while it will be unrolled from the storage bobbin; this unrolling motion will take place with very short stopping periods corresponding to the lighting periods of the film by the objective, and produced by the action of the fixing device upon the film, which we have previously described.

If, at any time, it is wished to stop the unrolling of the film, it will be sufficient to stop the action of the finger upon the tumbler Q; the latter, un-

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der the action of the spring  $j^1$  which pushes back the projection  $q$ , will come back to its primitive position, and the projections  $q$   $q^1$  will stop their action upon the pieces which they drive; the pawl  $B^2$  will again come into contact with the teeth of the ratchet wheel  $B^1$  and the friction rollers  $J^1$  will be separated from the drum  $J$ , the film stopping.

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The width of the shutter E.F. must evidently be equal to the perimeter of the rollers, so that a turn of the latter drives forward the strip by the margin exactly required, so that the images are not covered up and do not allow any space to be lost; moreover, the cams  $1^2$  are arranged so as to produce stops coinciding with the lighting periods. We have indicated upon the drawings six cams, and, inasmuch as the diameters of the toothed wheels, which serve for transmitting the movement of the cam axle  $1^3$  to the cylinder  $J$ , are equal, there will be six stops per turn of the cylinder  $J$ ; it will therefore be necessary, in case it is desired to utilize the six stops, to reduce the width of the shutter by  $1/6$  of its original size, which is done by means of the frame shown in Fig. 16.

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If it is desired to have a lessor number of images, it is not necessary to change the cams; the latter will produce a certain number of non-utilized stops, but each lighting period always coincides with a stop of the film.

In order to be able to introduce and remove the bobbins, the chamber  $A$  is provided at its upper part with a hinged cover  $A^1$  which, when the apparatus operates, prevents the entrance of the outside light.

As I stated at the beginning of these Letters Patent, the apparatus may be used either for

chronophotography on sensitive film, when operating before a lighted field, or for chronophotography on sensitive plate, when it is a question of studying the motions of a lighted object in a dark field.

In the first case, the mechanism above described is used by introducing in the slit R, Fig. 5, the admission shutter with variable opening, as indicated in Fig. 16. If the movements of an object lighted before a dark field are analyzed, then entire mechanism (unrolling of the film, which has just been described), becomes useless. The unpolished glass frame, Fig. 14, is then introduced in the slit R, Fig. 5 for focussing, then, after this operation has been performed and after having obtained the focussing, this frame is substituted by the frame, Fig. 15, which contains the sensitive plate; when this frame is introduced in the apparatus, the small front board which closed it is lifted up and the apparatus is ready for the analysis of the movements of an object lighted before a dark field; in fact, with each admission of the light emanated from the objective, the image of the lighted point will be obtained upon the sensitive plate, and, as this object is moving, a series of images of the object will be obtained upon the sensitive plate after several consecutive admissions of the light.

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Let us now study the arrangements adopted in order to obtain the successive lighting periods, and here we adopt two arrangements according to the tests which it is aimed to effect: One of which consists in cutting off the light in the objective and the other one, which is used when a great lighting period is required, consists in shutting off the light close to the film or to the sensitive glass. The apparatus is arranged so as to be able to uti-

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lize either one or the other of these dispositions, as required.

Let us first study the disposition used for shutting off the light in the objective.

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The toothed wheel  $O^3$ , Fig. 1, which receives the movement from the barrel  $O^2$  and which transmits, as stated above, the movement to the axles B and  $1^3$ , is wedged on the axle B, Fig. 7, upon which the telescopic transmission  $U^1$  is joined, thus constituting an axle of a variable length, upon which the disk S is wedged. The purpose of this telescopic transmission is to permit the axle  $U^1$  to grow elongated or shorter, according to the requirements of the focussing effected by separating from the part A of the apparatus, in which the sensitive film is placed, the part  $A^2$  which contains the objective—as is the case in all photographic apparatus.

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The shaft  $U^1$  is provided at its front extremity with a pinion T which transmits, by means of the rollers  $T^1$ ,  $T^2$ , the movement of this shaft to the disk  $S^1$ , parallel to the disk S. Let us suppose that one of the disks makes three turns while the other one only executes one turn. The coincidence of the shutters in the interior of the objective and the admission of the light only occurs every three days; a lighting period is thus secured in disks of small dimensions as short as in a disk three times larger. If it is desired to multiply the number of images, it will be sufficient to perforate a suitable number of shutters upon each side of the disks, and, on the other hand, to reduce to suitable proportions the width of the shutter, Fig. 16 through which the light reaches the film.

In order to change the number of shutters, it will be sufficient to keep, in one direction or the

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other, metallic curtains which slide against the disks upon which they are applied and which may either be placed before the shutters or uncover same.

As we stated above, it is absolutely indispensable that there be a concordance between the stops of the film and the lighting periods; this concordance is obtained, thanks to the mode of fixation of the disk S upon the telescopic axle U<sup>1</sup>. This fixation manner consists in a washer S<sup>1</sup> perforated with circle are slits which are traversed by two threaded tenons fastened in a similar washer forming part of disk S; the wedging which has been arranged in order to secure the desired concordance is maintained by means of clamping pins.

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If it is desired to obtain a very powerful lighting period not allowed by this arrangement in which the light is shut off close to objective, I modify the apparatus in the following manner, Figs. 5 and 6.

I suppress the whole fore part A<sup>2</sup> and the blower, and I remove the telescopic shaft U<sup>1</sup>, preserving only the rear part of the apparatus upon the axle X which receives its movement from the wheel O<sup>4</sup>, as indicated by Figs. 7 and 5; I fix a first disk X<sup>1</sup> very close to the shutter E, F. This disk carries, towards its centre, a hole X<sup>1</sup> into which the driver y<sup>1</sup>, fixed at the extremity of the shaft y is introduced; when turning, the disk drives the shaft y by means of the driver which, through the medium of the gearings Y, turns the disk Y<sup>1</sup>. The gearings are calculated in such a way as to give to the disk Y<sup>1</sup> a different speed than that of the disk X<sup>1</sup>, in order to produce the same effects as the two disks S and S<sup>1</sup> of which we spoke above.

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In the latter arrangement, the blower Z is placed in front of the apparatus and carries the objective suitable to the tests it is desired to make. It is useless to again refer to the object of the two shutter disks, this object is the same as in the previously described arrangement.

Whatever may be the arrangement adopted for chronophotography, the focussing occurs by means of a magnifying glass through the hole W provided with a mobile plug, viz., upon any one of the unpolished glasses.

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The reversibility of this apparatus can easily be seen, if a strip carrying positive images, lighted from the rear, are made to pass through the focus of the objective.

In order to easily determine the field in which the object, the motions of which are being studied, evolves, and for regulating the focussing when the apparatus is charged, we use an "aiming" device, the objective of which is identical to that of the apparatus proper.

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Finally, in case when operating upon stationary plate, and when only desiring to take a determined phase of the phenomenon, we place, in front of the objective, a curtain obturator of any system whatever which is opened at the time when the test begins and which is closed when the phenomenon ceases. In this manner, the images which it is desired to gather are not mixed with other images corresponding to phases which it is desired to overlook.

Fig. 1.

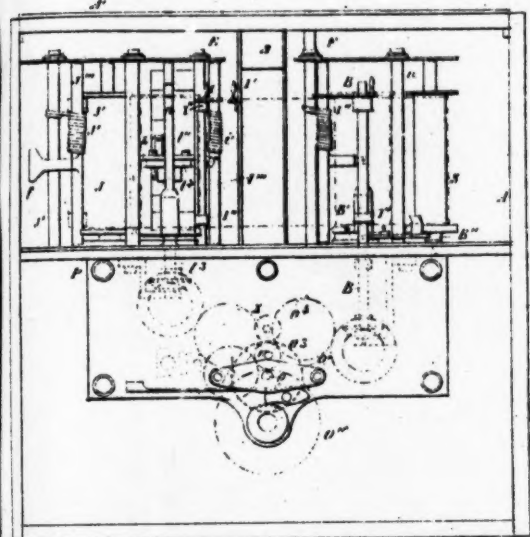


Fig. 2.

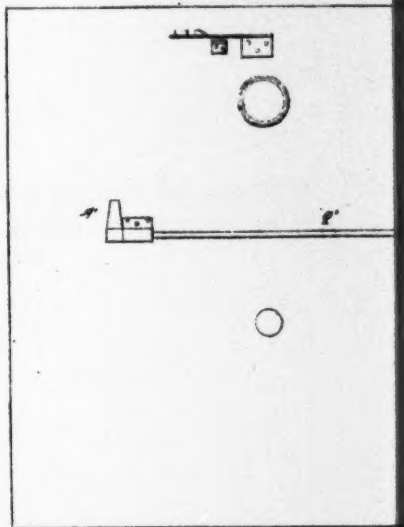


Fig. 3.

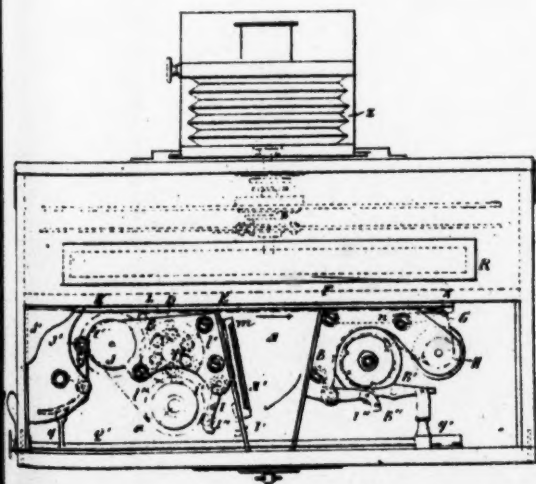
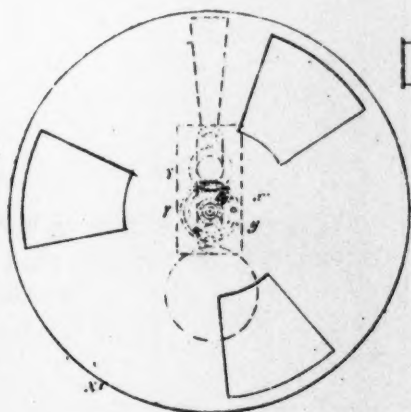


Fig. 4.



## APPAREIL CHRONOPHOTOGRAPHIQUE, ETC., PAR M. MAREY.

Fig. 4.

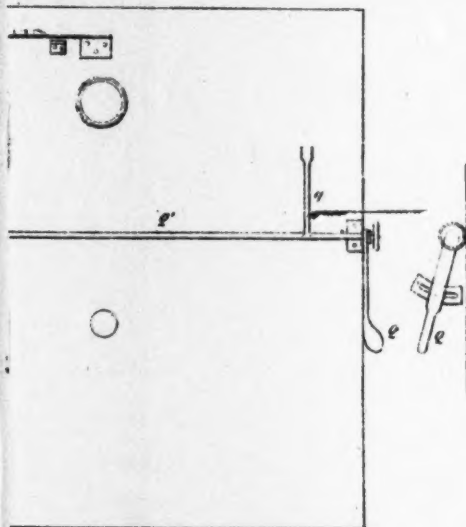


Fig. 3.

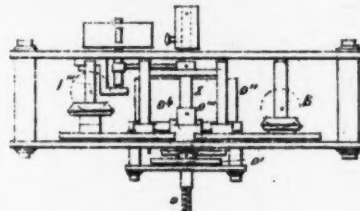


Fig. 14.



Fig. 9.

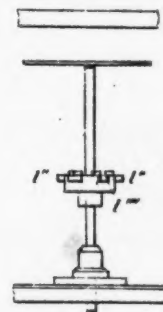


Fig. 11.

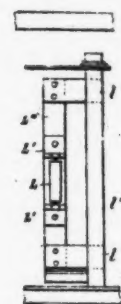


Fig. 12.

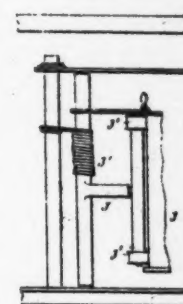


Fig. 15.

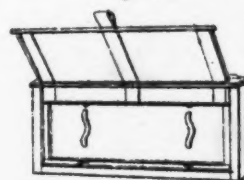


Fig. 10.



Fig. 13.



Fig. 16.

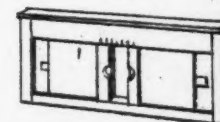


Fig. 5.

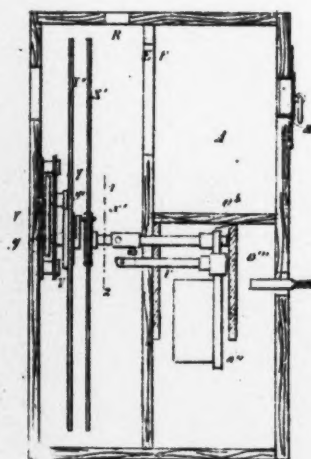


Fig. 8.

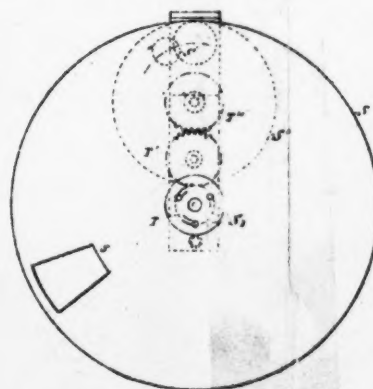
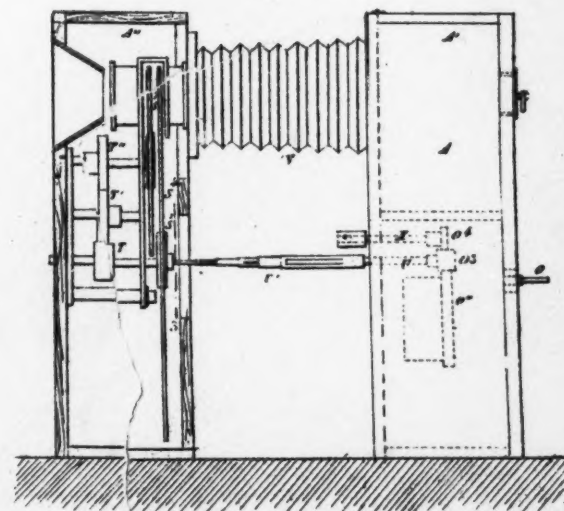


Fig. 7.



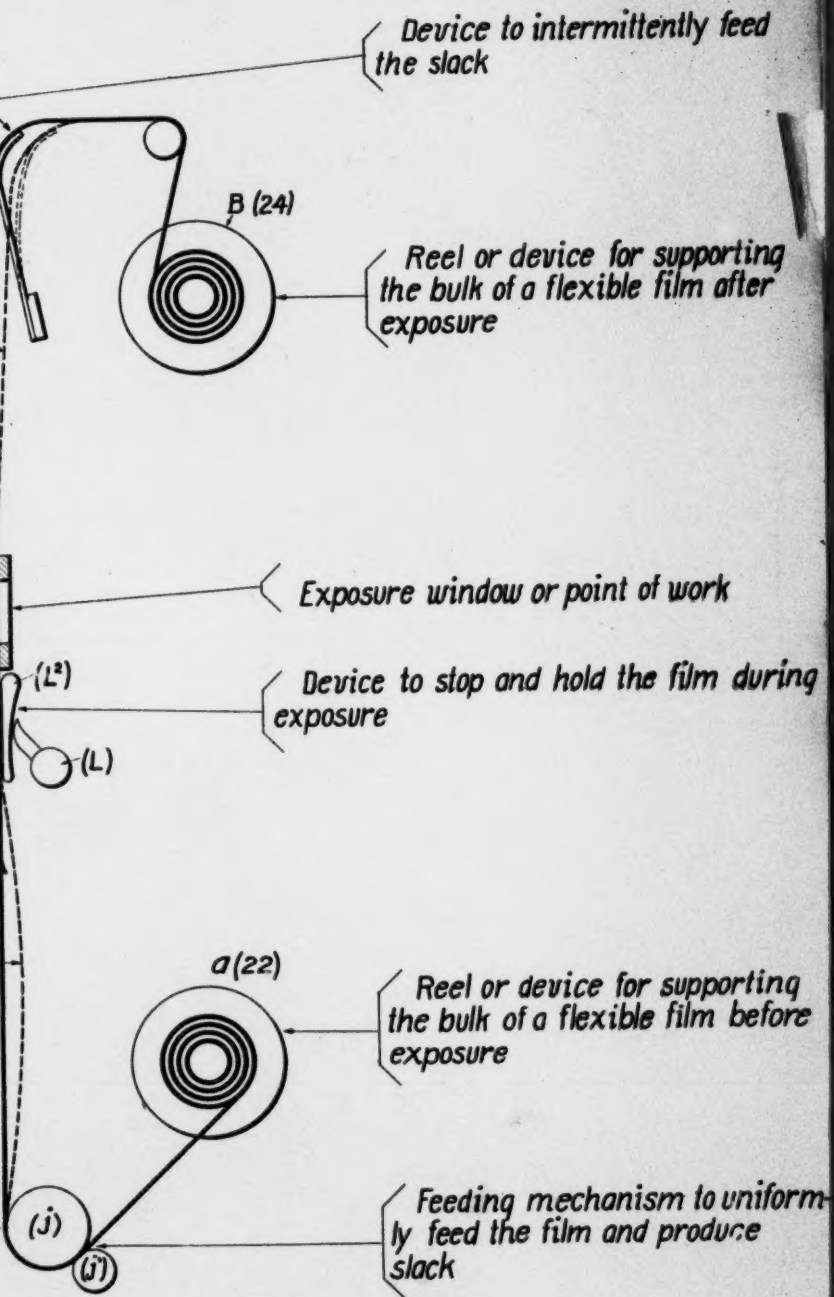


Slack 21°

Film 21

39

**DEFENDANTS' EXHIBIT No. 20**  
**Diagram of Marey French Patent 1893**

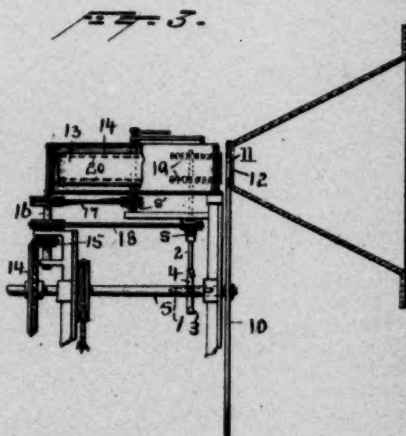
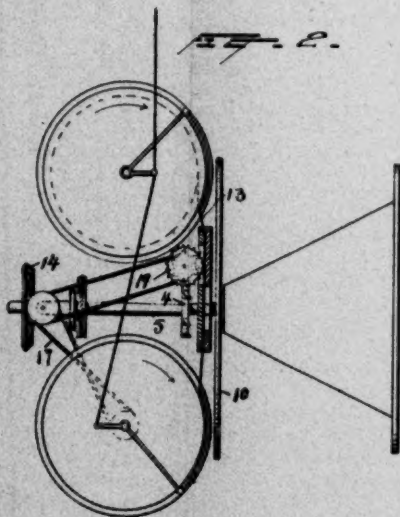
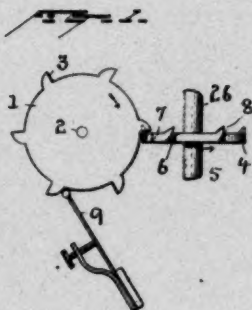


(No Model.)

T. A. EDISON.  
STOP DEVICE.

No. 491,993.

Patented Feb. 21, 1893.



Witnesses  
Morris A. Clark  
W. F. Phelps

Inventor  
T. A. Edison  
By his Attorney  
Myer & Sully

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## STOP DEVICE.

SPECIFICATION forming part of Letters Patent No. 491,993, dated February 21, 1893.

Original application filed August 24, 1891, Serial No. 403,535. Divided and this application filed April 11, 1892. Serial No. 428,614. (No model.)

*all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Stop Devices, (Case No. 950,) of which the following is a specification.

The present invention relates to devices adapted to stop a driven drum or shaft for an instant and then to allow the same to move forward and so on in rapid succession.

The main object of the invention is to provide such a device which shall operate with perfect certainty and with great rapidity, the construction preferably being such that the periods of rest shall be longer than those in which the device is moving forward.

The invention consists in the combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of the detent device; and Figs. 2 and 3 are plan and side views respectively, showing the device applied to a photographic apparatus.

In my application (Case No. 929,) filed August 24, 1891, Serial No. 403,535, I have shown and described this stop device applied to an apparatus for taking pictures of moving objects, and the present application is a division of that application, only a part of the photographic apparatus, however, being shown.

The detent device consists of a wheel 1 on shaft 2, which when the device is in use is given a tendency to rotate by suitable power. The wheel 1 has projecting teeth 3, six being shown, which teeth are adapted to strike against the face of the co-operating detent or stop wheel 4 on a shaft 5, which is constantly driven by a suitable motor. The wheel 4 has a corresponding number of notches 6 at regular intervals around its periphery. These notches, the depth of which is indicated by the dotted line 7, Fig. 1, are of such shape and size that the teeth 3 can pass through them when the wheels 1 and 4 are rotated in the direction of the arrow. Each tooth in succession will strike the face of wheel 4, thereby bringing wheel 1 and shaft 2 and parts geared thereto, absolutely to rest, and after the lapse of a moment the tooth will pass through the

notch next below it, allowing the wheel 1 and shaft 2, and parts driven thereby, to move another step. To avoid the danger of wheel 4 moving so quickly that a tooth cannot enter the proper notch, an extending lip 8 is provided adjacent to each notch. The lips 8 extend laterally from the face of wheel 4 toward which the teeth on wheel 1 move, as distinguished from teeth extending radially. As this lip comes up under a tooth 3, it will guide the tooth into the notch.

9 is a detent spring or pawl to prevent backward movement of the wheel 1.

I prefer to so proportion the parts above described when they are to be used in my photographic apparatus, that the wheel 1 is at rest for nine-tenths of the time in order to give a long exposure of the sensitive film, and is moving forward one-tenth of the time, said forward movement being made to take place from thirty to fifty times per second. On the shaft 5, or on any suitable shaft driven by the motor, is a revolving disk 10 serving as a shutter for alternately exposing and covering the sensitive film. This disk, which is continuously revolving, is provided with suitable apertures 11 near its edge in such position that as the shutter is rotated the apertures pass directly between the camera opening 12 and the sensitive film 13 at a point midway between the reels, from one to the other of which the film is wound, as described in my application Case No. 929. On the motor shaft is a beveled wheel 14 gearing with a wheel 15 on shaft 16, which shaft is connected to the axis of one of the reels above referred to by a cross-belt 17, and to the shaft 2 by a straight belt 18, the pulleys on shaft 2 and the axis of the reel being frictionally connected with their shafts so as to constitute a yielding driving connection. This frictional or yielding driving connection may be formed by placing springs S, S' on the spindles adjacent to the loose pulleys, as shown in Fig. 3, the upper ends of the springs pressing against (but being otherwise unconnected from) the lower faces of the pulleys and having sufficient tension to connect the pulleys with the spindles when little power is required to drive the apparatus, but allowing the pulleys to slip when resistance to movement of the apparatus increases. Since this

is a well known way of connecting pulleys to their shafts, and since other yielding or frictional connections may be used, the construction is not shown in detail, but is indicated merely in the drawings. At the upper end of shaft 2 are two feed-wheels 19, the teeth of which are adapted to engage the perforations 20 in the film 13 to advance the same.

With the arrangement described, when the driving shaft 5 is rotating, that is, when the apparatus is being used, it will be evident that detent wheel 4 will be driven continuously, and that shaft 2 and wheels 19 will be driven except when said parts are positively held from forward movement by the detent device described. At such times the frictional driving connection slips. The result is that until a tooth slips through a notch in the detent wheel, the film 13 will be at rest, but when said tooth passes through the notch the film will be advanced another step. This movement is so timed that an opening 11 will be in the position shown in Fig. 3 while the film is at rest, and while the film is moving a solid part of the disk 10 will be in front of the opening 12.

Evidently the stop device described is not confined to the use above indicated. The form of the teeth and notches, as well as their number, may be varied to some extent without departing from my invention.

What I claim is—

1. A detent or stop device consisting of a rotatable wheel or disk provided with notches or passages in its periphery, a wheel in a plane at an angle with the first mentioned wheel and provided with teeth adapted to pass through the notches or passages in the first mentioned wheel, and means for driving both of said wheels, said means being distinct from

said wheels themselves substantially as described.

2. A detent or stop device consisting of a rotatable wheel or disk provided with notches in its periphery, laterally extending lips adjacent to the notches, and a wheel tending when the device is in use to turn in a plane at an angle with the first mentioned wheel and provided with teeth adapted to pass through the notches in the first mentioned wheel, substantially as described.

3. A detent or stop device consisting of a rotatable wheel provided with six notches in its periphery and arranged at regular intervals, a second wheel tending when the device is in use to rotate in a plane at right-angles to the first mentioned wheel and provided with six teeth adapted to pass through the notches in the first mentioned wheel, and means for driving both wheels, said means being distinct from the wheels themselves, substantially as described.

4. A detent or stop device consisting of a rotatable wheel provided with notches in its periphery and arranged at regular intervals, a driving shaft for said wheel, a second wheel in a plane at an angle to the first and provided with teeth adapted to pass through the notches in it, driving means distinct from said first wheel for rotating said second wheel, and a yielding driving connection between said wheel and driving shaft, substantially as described.

This specification signed and witnessed this 5th day of April, 1893.

THOMAS A. EDISON.

Witnesses:

JOHN F. RANDOLPH,  
THOMAS MAGUIRE.

THE UNIVERSITY OF CHICAGO  
LIBRARY  
CHICAGO, ILL. 60637



(No Model.)

4 Sheets—Sheet 1.

T. A. EDISON.

APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS.

No. 493,426.

Patented Mar. 14, 1893.

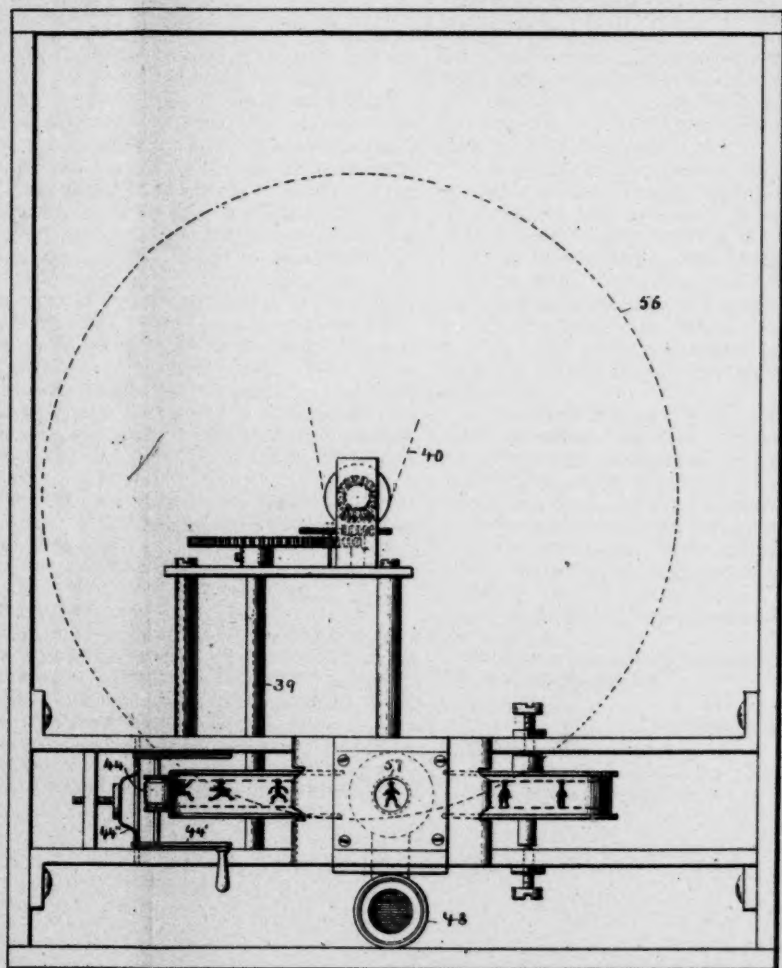
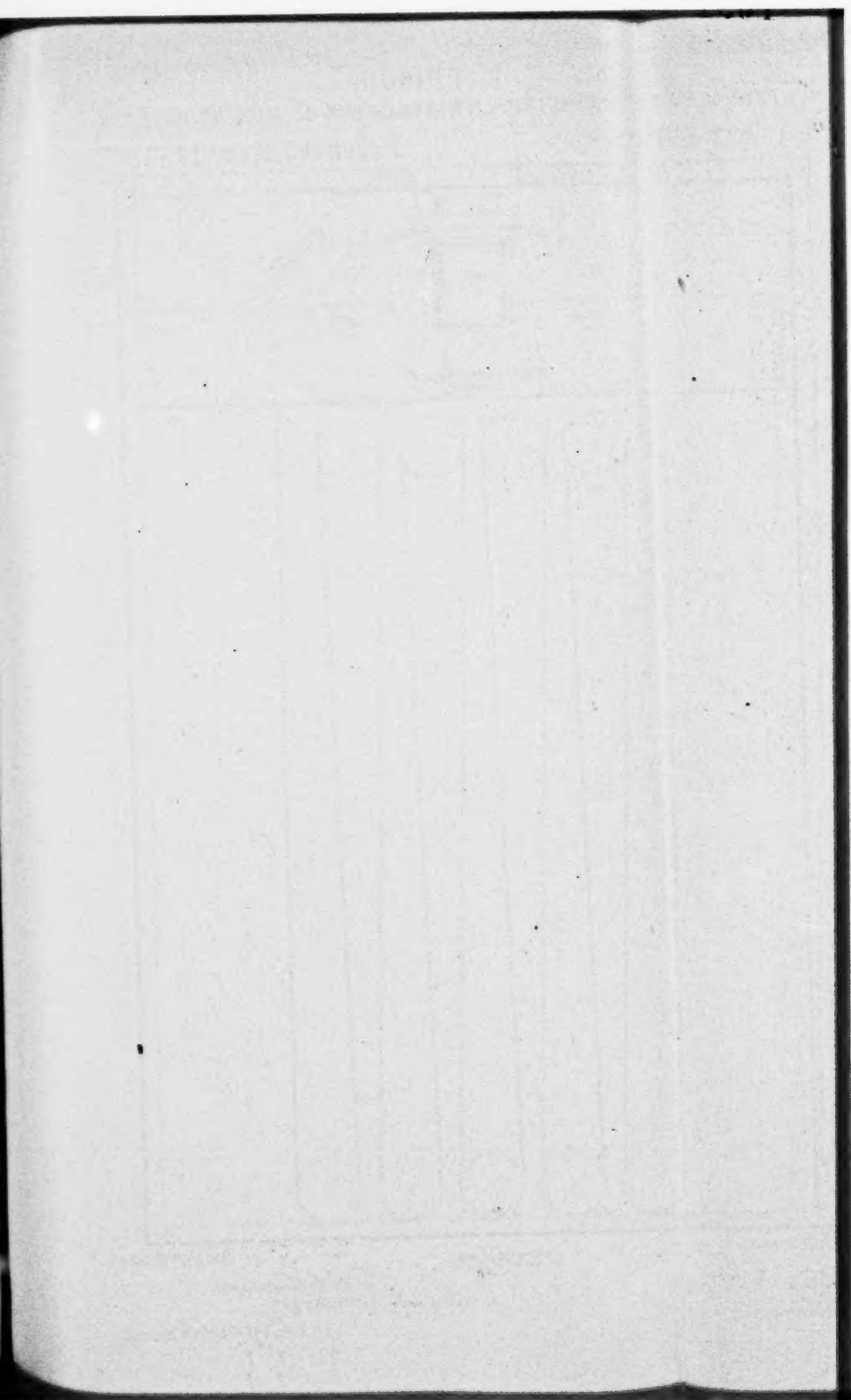


Fig. 1.

Witnesses  
J. H. Black.  
G. F. Clark.

Inventor  
T. A. Edison  
By his Attorneys  
Syer & Seely

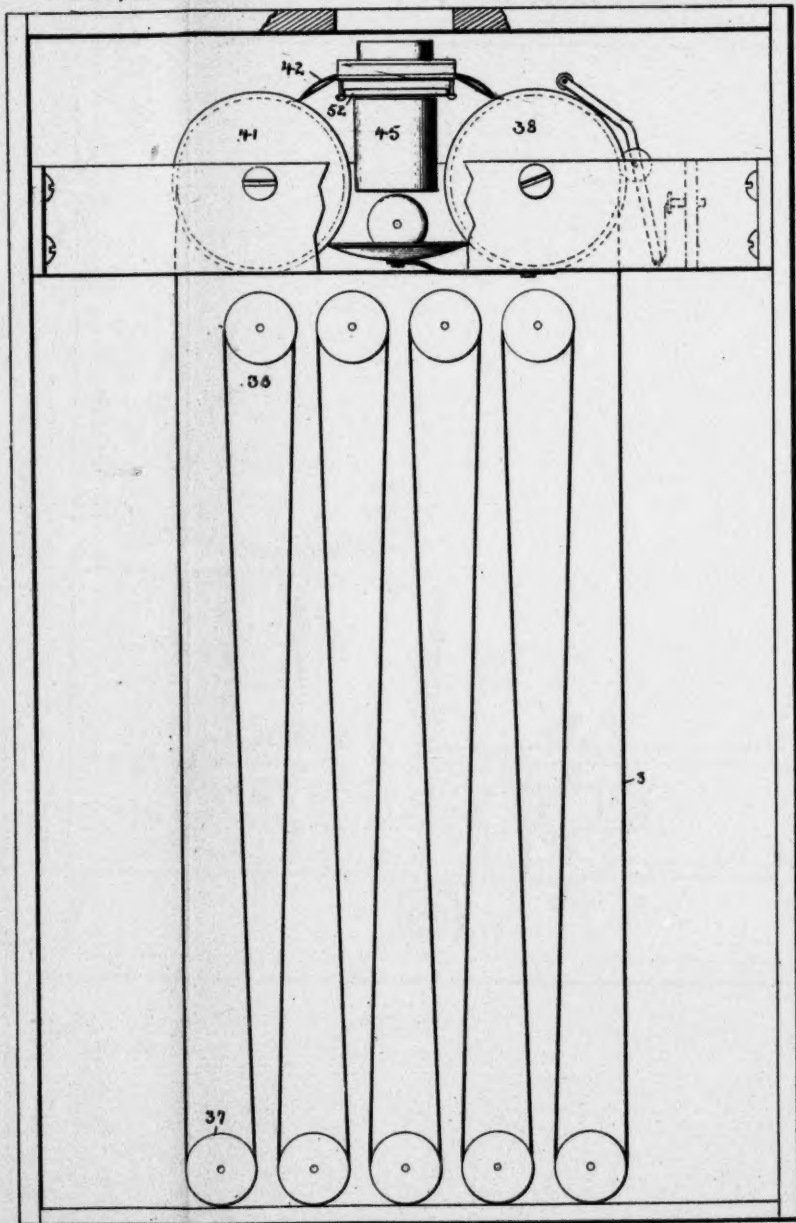


T. A. EDISON.

APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS.

No. 493,426.

Patented Mar. 14, 1893.

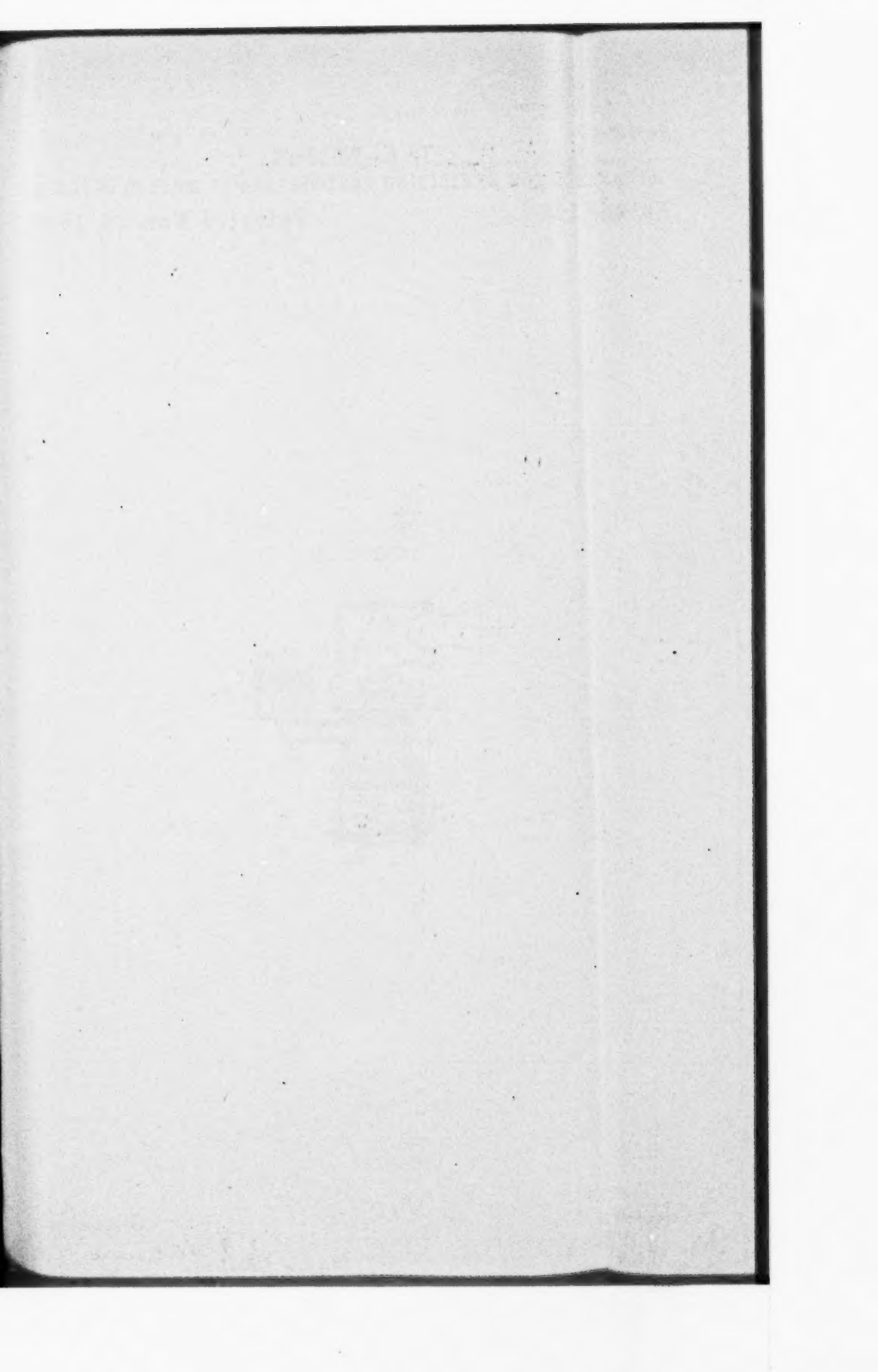


Witnesses

Horris A. Clark,  
At. F. Charles

Fig. 2.

Inventor  
T. A. Edison.  
By his Attorneys  
Dyer & Seely.



(No Model.)

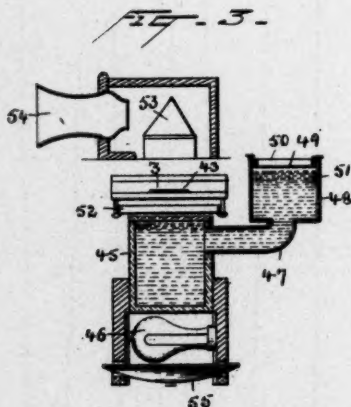
4 Sheets—Sheet 3.

T. A. EDISON.

APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS.

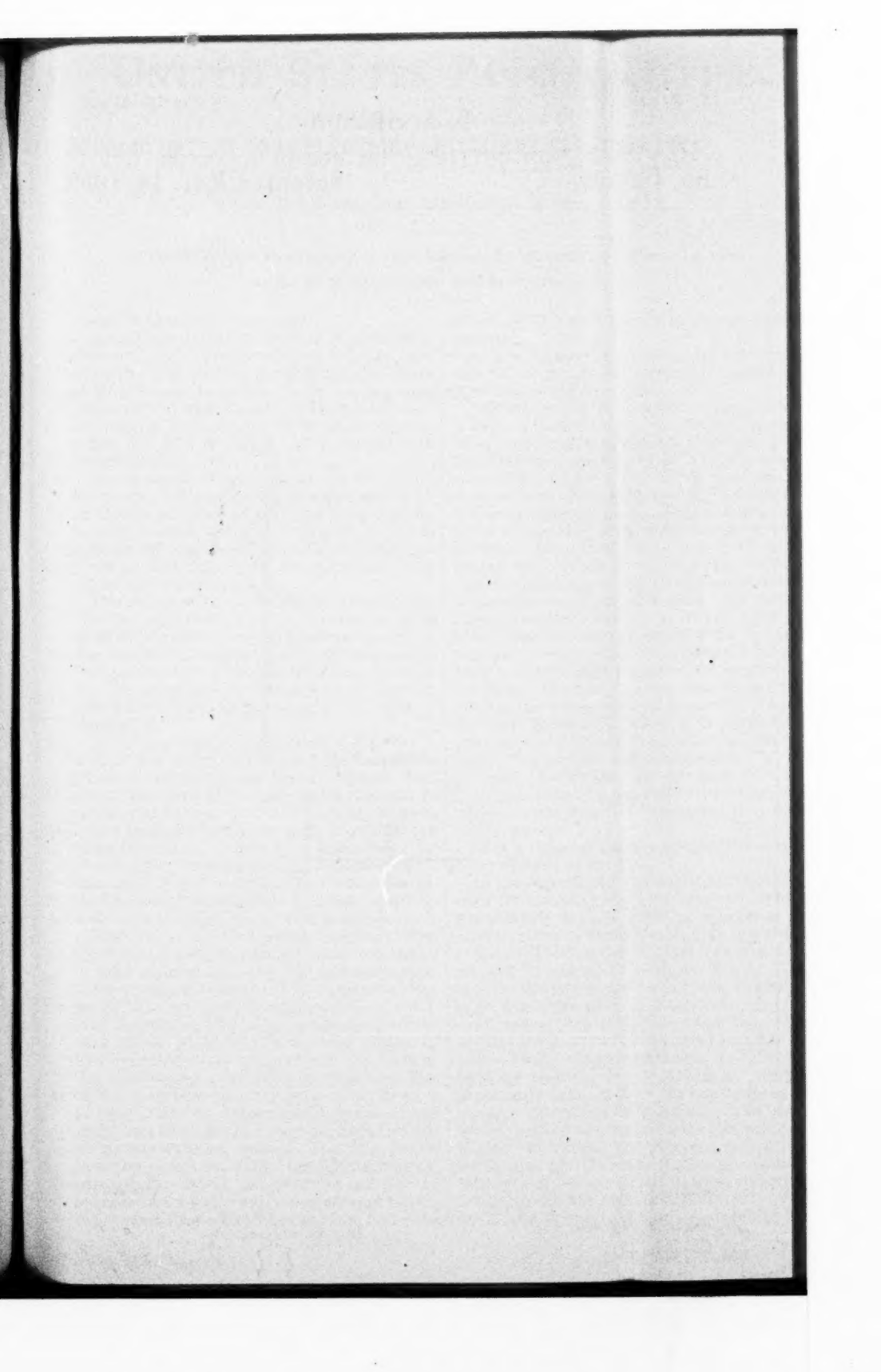
No. 493,426.

Patented Mar. 14, 1893.



Witnesses  
Horris A. Black.  
W. F. Charles.

Inventor  
T. A. Edison,  
By his Attorneys,  
Dyer & Seely.



(No Model.)

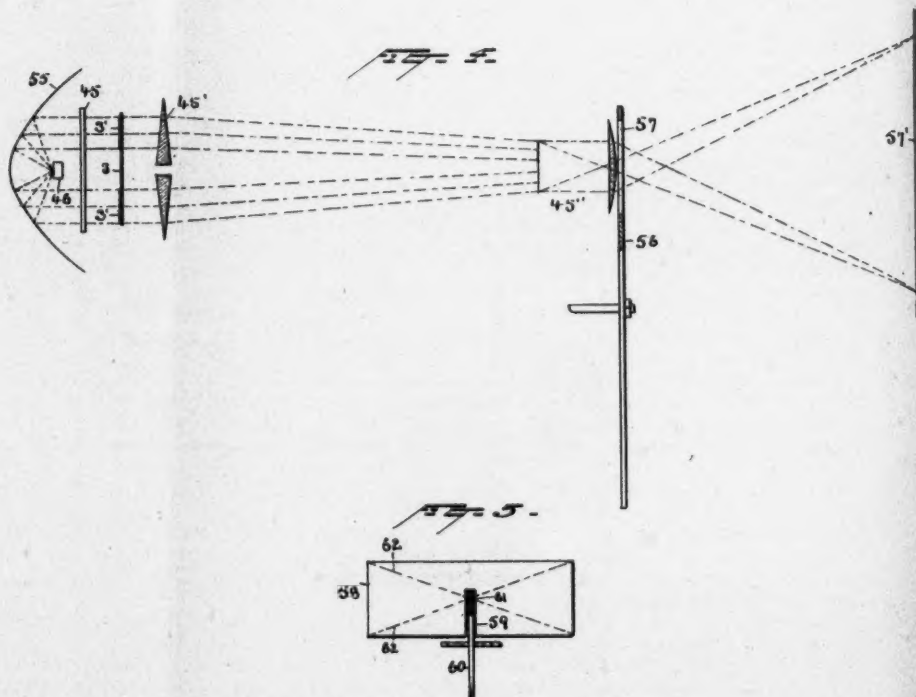
4 Sheets—Sheet 4.

T. A. EDISON.

APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS.

No. 493,426.

Patented Mar. 14, 1893.



Witnesses  
Morris A. Clark.  
H. F. Charles

Inventor  
T. A. Edison  
By his Attorneys  
Ayer & Sully

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS.

SPECIFICATION forming part of Letters Patent No. 493,426, dated March 14, 1893.

Application filed August 24, 1891. Serial No. 403,536. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Apparatus for Exhibiting Photographs of Moving Objects, (Case No. 930,) of which the following is a specification.

The present invention relates to apparatus for using photographs which have been taken in rapid succession of an object in motion, by means of which a single composite picture is seen by the eye, said picture giving the impression that the object photographed is in actual and natural motion.

The object of the invention is to provide an efficient apparatus adapted to pass a large number of pictures rapidly before the eye of the beholder in regular order, and the invention consists in the several combinations forming the apparatus, or definite parts thereof, hereinafter fully described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a plan view of the reproducing apparatus, the top of the inclosing case being removed. Fig. 2 is a rear view of the apparatus, the back of the case and the motor being removed and the frame being broken away to show some of the parts behind it. Fig. 3 is a sectional view showing the arrangement of reflector, light, film, &c. Fig. 4 is a view illustrating the reproduction of stereoscopic pictures; and Fig. 5 shows a modified form of lens and shutter.

The film 3, on which a large number of photographs of a moving object have been taken in such manner that any two successive pictures are almost identical in appearance as set forth in my application, Serial No. 403,534, filed August 24, 1891, is passed back and forth over rollers 36, 37 at the top and bottom of the inclosing case respectively, the ends of the film being connected so that the film forms an endless band or belt. This band is advanced at the proper rapid speed by the reel 38 on the shaft 39 driven through the belt 40 by any suitable motor. The film passes over the pulley 41, under the light spring 42, through the slit 43, and over the reel 38. In order to get a sufficiently long strip or tape—say several hundred or thousands of feet—the

rollers 36, 37 may be multiplied to any desired extent.

44 is a brake-roller, carried by the crank-arm 44', provided with a suitable handle and thrown forward by a spring 44".

Below the passage through which the film is led is a glass cell 45 containing alum water for the purpose of absorbing heat-rays from the electric or other light 46. This is shown as an incandescent lamp, which, when the apparatus is in use, is continuously lighted, but it is only essential that the light should exist when an opening in the shutter comes over a picture. The cell 45 has a branch 47 terminating in a reservoir or tank 48, which is tightly closed by a rubber diaphragm 49 held in place by the clamping ring 50. On the surface of the alum water is a surface 51 of oil to still further prevent evaporation. Above the cell 45 is a ground-glass plate 52 for still further absorbing the heat-rays and protecting the film. This plate may be tinted to give the picture the appearance of a colored picture, the plate being all of one tint, or partially of one tint and partially of another tint, according to the subject and arrangement of the picture. Above the film are suitable lenses or prisms 53, and a sight opening 54 through which an observer can look to see the reproduced picture.

55 is a reflector below the lamp to throw the light upward to the film.

In the reproducing apparatus a shutter is used for covering and exposing the pictures successively in much the same manner as the sensitive film is exposed in taking the photographs. The position of such a shutter is indicated in dotted lines at 56, Fig. 1. This shutter has one or more openings 57 near its edge, the single opening shown being directly over one of the pictures on the film. This shutter is continuously revolved through the belt 40 with a speed sufficient to bring the opening centrally over a picture at intervals practically equal to the intervals between exposures in taking the pictures. The means for advancing the film and for operating the shutter to expose the pictures may be the same in all particulars as in the apparatus for taking pictures described in my application, Serial No. 403,535, filed August 24, 1891. When the brake 44 is released by means of the han-

dle, the film is pulled forward between the lamp and the prisms at a regulated speed, corresponding to the speed at which the pictures were taken, when the observer at the sight opening will seem to see a single picture, the object represented being in easy and natural motion, owing to the fact that the successive pictures are so nearly alike that at a glance they cannot be clearly distinguished from each other, although they do in fact represent positions of the object at different moments.

I propose in some cases to use a film on which pictures have been taken stereoscopically, that is, in which pictures have been taken in pairs side by side on the film, as fully described in my application, Serial No. 403,535. This arrangement is indicated in Fig. 4, in which 3 is the film, which is supposed to be movable in a line at right-angles to the paper. On the film at regular intervals are the pictures arranged in pairs. These pictures are indicated by the two heavy lines 3'.

46 is the electric lamp. 55 is a parabolic reflector, and 45 the alum cell between the lamp and the film.

45' are prisms for deflecting the rays from the two pictures and superposing them on the projecting lens 45". 56 is the shutter, which is rotated at a constant speed and which is provided with an opening 57 adapted to uncover the lens at regular intervals.

57' is a screen on which the picture is projected. This screen may be white or, preferably, may be colored to give the picture the appearance of a colored picture; for example, if the picture shows sky and earth, the upper part of the screen may be colored blue and the lower part brown, and it may be otherwise colored for other objects. The reproduction of stereoscopic photographs of moving objects gives a very vivid impression of movement, and the coloring just described adds to the realistic effect.

Instead of using a large shutter such as above described, I may use a very small shutter with a small opening by placing it near the center of the lens through which the rays pass, the shutter being placed in a slit in the body of the lens, and the opening in the shutter passing across the line where the converging rays intersect. 58 indicates a lens, 59 a slit therein, 60 a small shutter adapted to rotate in the slit, 61 an opening in the shutter, 62 the light-rays which intersect and pass through the opening 61.

I am aware that a heat absorbent, such as alum water, has been used in connection with microscopes between the objects being examined and the lens to protect said object from the effect of heat concentrated thereon by said lens. I do not, therefore, claim broadly the use of such heat absorbent, but only the use thereof in combination with the moving film having pictures thereon and certain elements of my apparatus, as hereinafter defined in the claims.

What I claim is—

1. The combination, in a picture exhibiting apparatus, of a series of rollers, a tape in the form of an endless belt on which are a large number of pictures of a moving object, said tape being passed back and forth over said rollers, suitable means whereby the tape may be fed forward, and a light for illuminating said pictures as they pass over it, substantially as described.

2. The combination, in a picture exhibiting apparatus, of a series of rollers, a tape on which are a large number of pictures of a moving object passed back and forth over said rollers, suitable means whereby the tape may be fed forward, a light for illuminating said pictures as they pass over it, a sight opening, and prisms for directing the beams to said sight opening, substantially as described.

3. The combination, in a picture exhibiting apparatus, of a film in the form of a tape and having a large number of pictures on it representing an object in motion, means of supporting and moving said film, a light for illuminating each picture as it passes before the eye, and a transparent heat absorbent between the light and the film, substantially as described.

4. The combination, in a picture exhibiting apparatus, of a film in the form of a tape and having a large number of pictures on it representing an object in motion, means for supporting and moving said film, a light for illuminating each picture as it passes before the eye, and a glass cell containing alum water between the light and the film, substantially as described.

5. The combination, in a picture exhibiting apparatus, of a film or surface having a large number of pictures on it representing an object in motion, means of supporting and moving said film, a light for illuminating each picture as it passes before the eye, and a ground glass plate between the light and the film, substantially as described.

6. The combination, in a picture exhibiting apparatus, of a long endless tape on which are a large number of pictures of an object in motion, a support for said tape, means for advancing the tape, and a shutter having an opening in it for exposing the pictures one after another, said shutter being driven so that an opening comes directly over the film at the same moment that a picture is moved along into position to be seen, substantially as described.

7. The combination of an endless tape with pictures representing an object in motion and being so nearly alike as not to be readily distinguishable arranged at regular intervals thereon, means for supporting said tape and for moving it along at a regulated speed, and a light for illuminating each picture as it comes into position to be seen, substantially as described.

8. The combination of a photograph, means for throwing the same onto a suitable lens or

prism, and a shutter provided with an opening and movable across the lens in a slit at or near the center thereof, substantially as described.

5 9. The combination of a film or surface having on it pictures of a moving object taken stereoscopically side by side, means for moving said film or surface rapidly forward at a regulated speed, a projecting lens or prism, and  
10 means for superposing said pictures on said lens or prism, substantially as described.

10 10. The combination of a film or surface having on it pictures taken stereoscopically side by side, means for moving said film or  
15 surface forward at a regulated speed, a projecting lens or prism, means for superposing said pictures on said lens or prism, and a screen onto which the pictures are thrown, substantially as described.

20 11. The combination of a film or surface having on it pictures taken stereoscopically side by side, means for moving said film or surface forward at a regulated speed, means  
25 for superposing said pictures, and a screen colored to correspond with the subject of the

photograph onto which the superposed pictures are thrown, substantially as described.

12. The combination of the film having pictures taken stereoscopically on it in pairs side  
30 by side, means for moving said film, the light and reflector for illuminating the pictures, the heat absorbent between said light and film, and means for superposing the pictures and rendering them visible as a single picture, substantially as described.

13. The combination, in a picture-exhibiting apparatus, of a transparent flexible band  
35 or tape having a large number of pictures on it representing an object in motion, means for supporting and moving said tape forward to bring the pictures into view in rapid succession and regular order, and a sight opening at  
40 a point along the tape through which the pictures can be seen, substantially as described.

This specification signed and witnessed  
45 this 31st day of July, 1891.

THOS. A. EDISON.

Witnesses:

JOHN F. RANDOLPH,  
FREDERICK OTT.

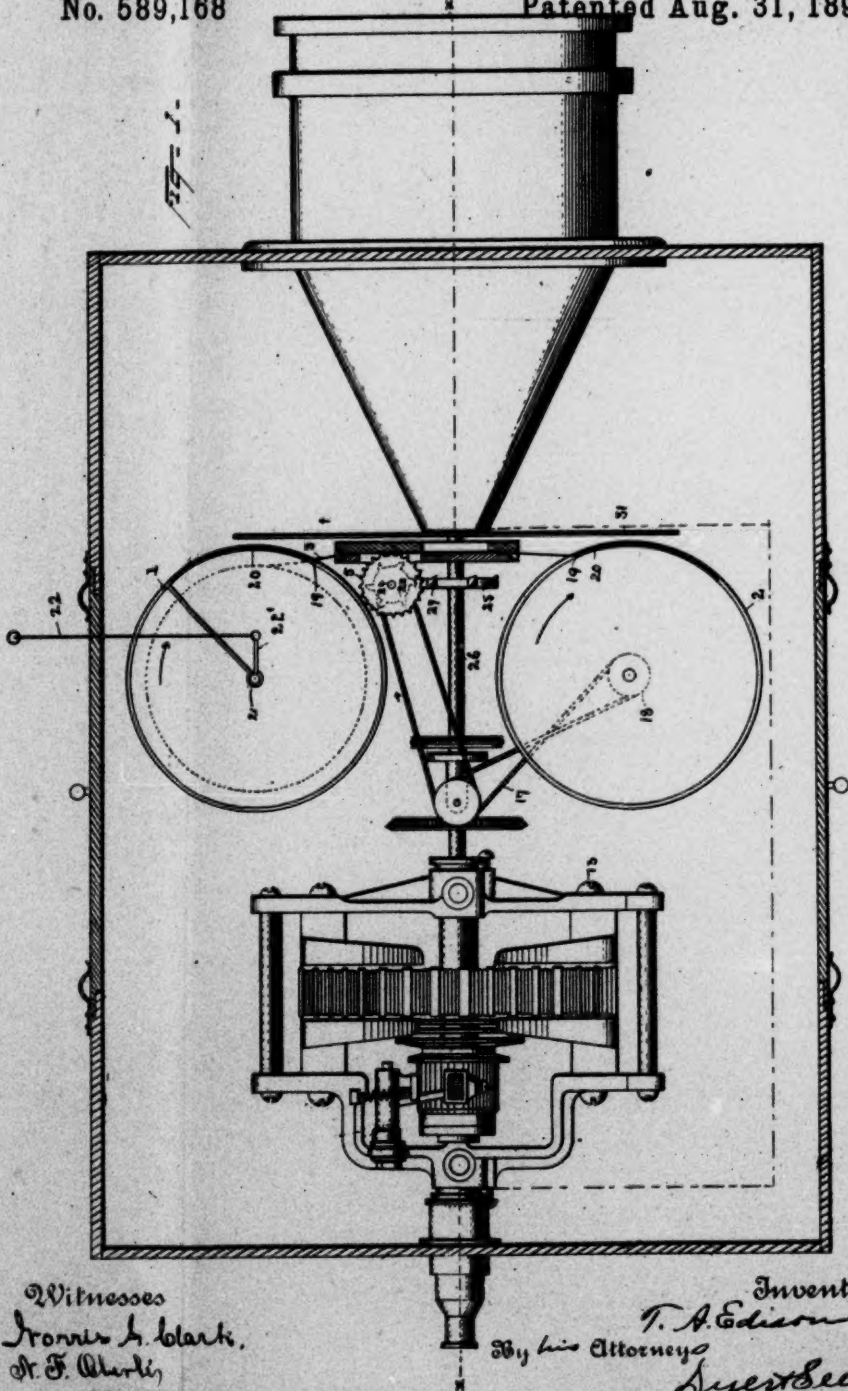
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**T. A. EDISON.**  
**KINETOGRAPHIC CAMERA.**

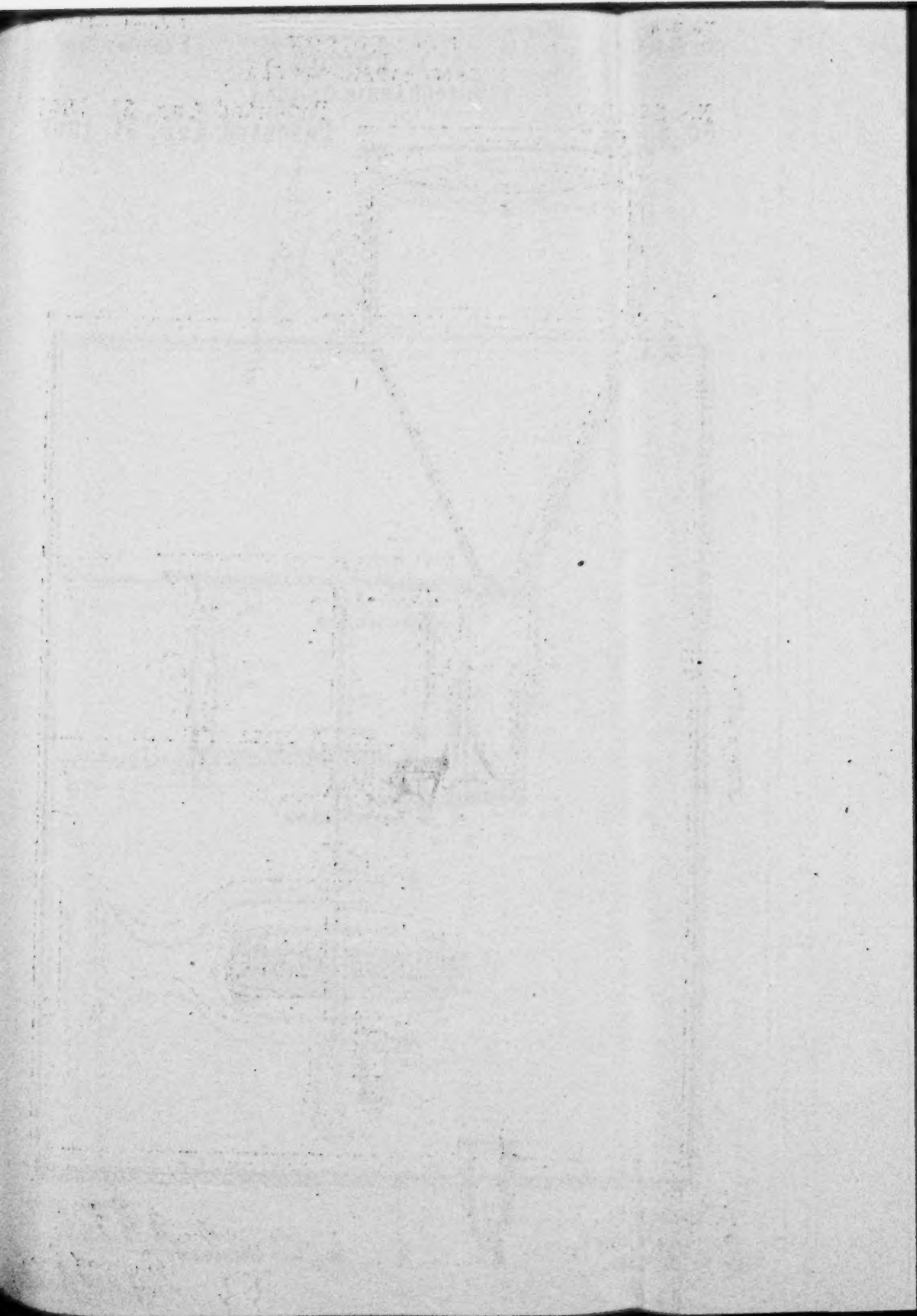
**No. 589,168**

Patented Aug. 31, 1897.



Witnesses  
J. J. L. Clark,  
St. F. Charles

Inventor  
T. A. Edison  
Attorneys  
Lyster & Seely



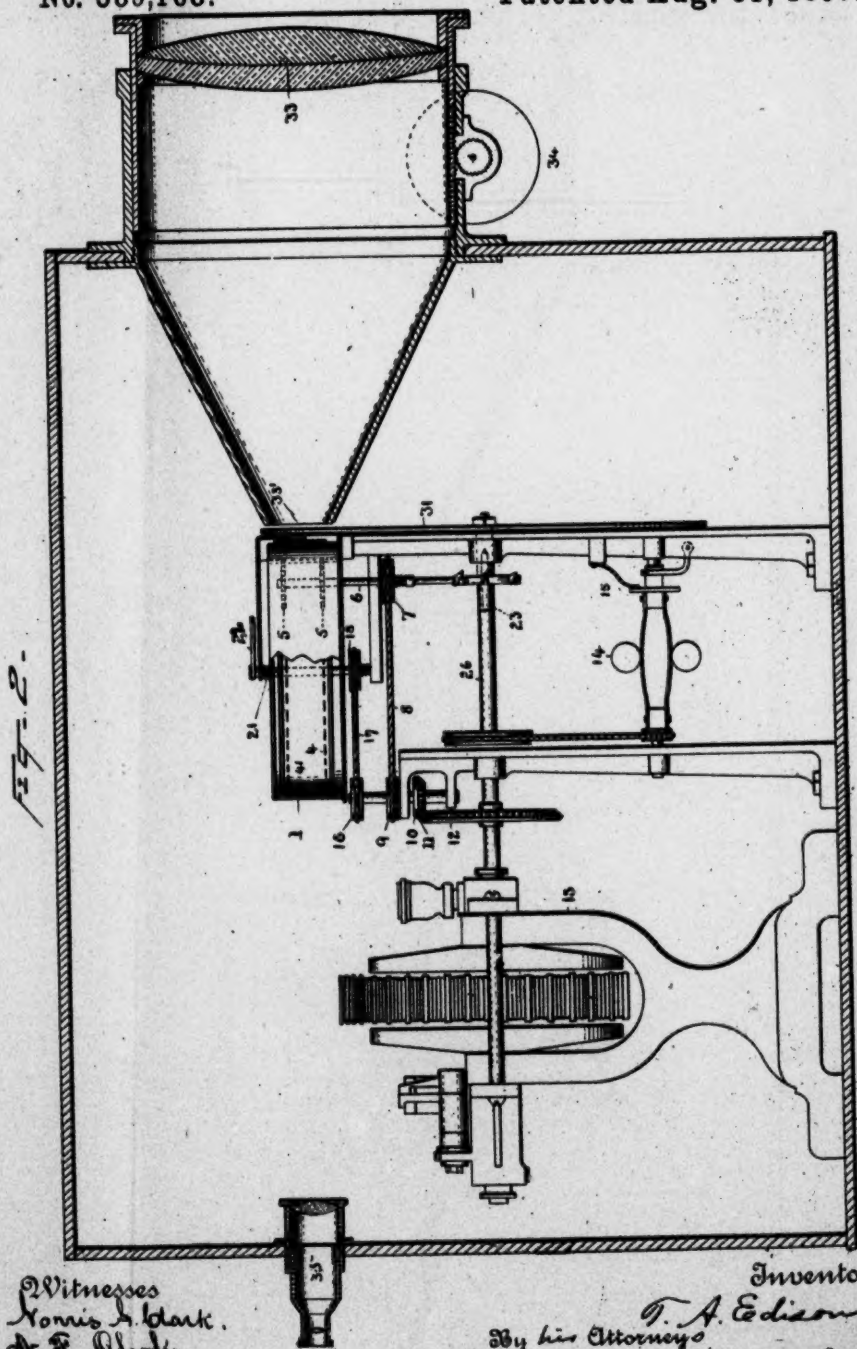
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3 Sheets—Sheet 2.

T. A. EDISON.  
KINETOGRAPHIC CAMERA.

No. 589,168.

Patented Aug. 31, 1897.



Witnesses  
Thomas A. Clark.  
A. S. Clark.

Inventor  
T. A. Edison  
By his Attorneys  
Sylvester Seligman



(No Model.)

3 Sheets—Sheet 3.

T. A. EDISON.  
KINETOGRAPHIC CAMERA.

No. 589,168.

Patented Aug. 31, 1897.

Fig. 5.

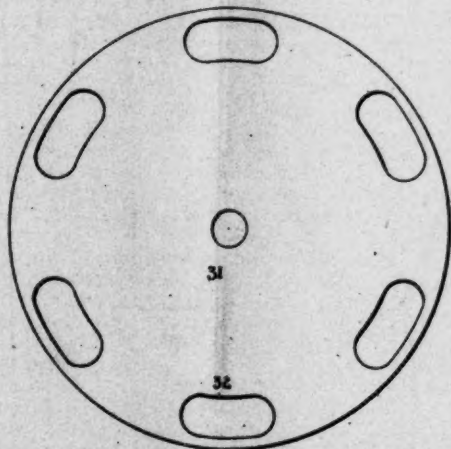


Fig. 6.

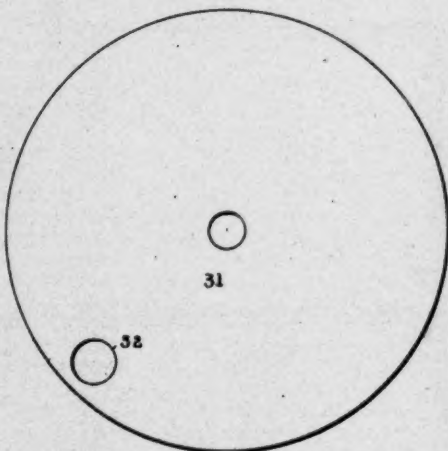


Fig. 3.

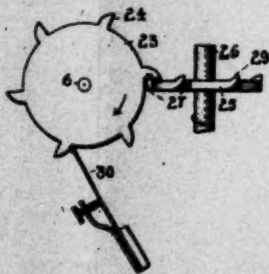


Fig. 4.

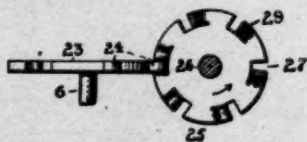
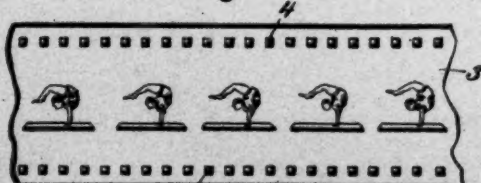


Fig. 7.



Witnesses  
Ivoris J. Clark  
W. H. Ayer

Inventor  
Thomas A. Edison  
By his Attorneys  
Ayer & Seely

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## KINETOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 589,168, dated August 31, 1897.

Application filed August 24, 1891. Serial No. 403,534. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Kinetoscopes, (Case No. 928,) of which the following is a specification.

The purpose I have in view is to produce pictures representing objects in motion throughout an extended period of time which may be utilized to exhibit the scene including such moving objects in a perfect and natural manner by means of a suitable exhibiting apparatus, such as that described in an application filed simultaneously herewith, (Patent No. 493,426, dated March 14, 1893.) I have found that it is possible to accomplish this end by means of photography.

In carrying out my invention I employ an apparatus for effecting by photography a representation suitable for reproduction of a scene including a moving object or objects comprising a means, such a single camera, for intermittently projecting at such rapid rate as to result in persistence of vision images of successive positions of the object or objects in motion as observed from a fixed and single point of view, a sensitized tape-like film, and a means for so moving the film as to cause the successive images to be received thereon separately and in single-line sequence. The movements of the tape-film may be continuous or intermittent, but the latter is preferable, and it is further preferable that the periods of rest of the film should be longer than the periods of movement.

By taking the photographs at a rate sufficiently high as to result in persistence of vision the developed photographs will, when brought successively into view by an exhibiting apparatus, reproduce the movements faithfully and naturally.

I have been able to take with a single camera and a tape-film as many as forty-six photographs per second, each having a size measured lengthwise of the tape of one inch, and I have also been able to hold the tape at rest for nine-tenths of the time; but I do not wish to limit the scope of my invention to this high rate of speed nor to this great disproportion between the periods of rest and the

periods of motion, since with some subjects a speed as low as thirty pictures per second or even lower is sufficient, and while it is desirable to make the periods of rest as much longer than the periods of motion as possible any excess of the periods of rest over the periods of motion is advantageous.

In the accompanying drawings, forming a part hereof, Figure 1 is a plan view, with the top of the casing removed, of a form of apparatus which I have found highly useful for the taking of the photographs. Fig. 2 is a vertical longitudinal section on line  $x x$  in Fig. 1. Figs. 3 and 4 are enlarged views of the stop mechanism of the photographing apparatus. Figs. 5 and 6 are plan views of two different forms of shutters for the photographing apparatus, and Fig. 7 is a perspective view of a section of the tape-film with the photographs thereon.

Referring to the drawings, 3 indicates the transparent or translucent tape-film, which before the apparatus is put in operation is all coiled on a reel in the sheet-metal box or case 1, the free end being connected to an empty reel in the case 2. The film 3 is preferably of sufficient width to admit the taking of pictures one inch in diameter between the rows of holes 4, Figs. 2 and 7, arranged at regular intervals along the two edges of the film, and into which holes the teeth of the wheels 5, Figs. 1 and 2, enter for the purpose of positively advancing the film. When the film is narrow, it is not essential to use two rows of perforations and two feed-wheels, one feed-wheel being sufficient. Said wheels are mounted on a shaft 6, which carries a loose pulley 7—that is, a pulley frictionally connected to its shaft and forming a yielding mechanical connection. This pulley is driven by a cord or belt 8 from a pulley 9 on the shaft 10, which shaft is driven by means of the beveled gears 11 12. The wheel 12 is preferably driven by an electric motor 13, which when the apparatus is in use is regulated to run at the desired uniform speed, being controlled by the centrifugal governor 14 and the circuit-controller 15 in a well-known manner. On the shaft 10 is another pulley 16, which is connected by a cross-belt 17 to a pulley 18, also frictionally connected to its shaft, and which carries the reel to

which the tape is connected in casing 2. The film passes from the casing 1 through a slit formed by the edge 19 and the sliding door 20, which is normally thrown forward by the spring 21, Fig. 2, with sufficient force to clamp the film and hold it from movement. When the door 20 is retracted by pulling on the rod or string 22, which is connected to the arm 22', the film is liberated and allowed to advance. Film-case 2 is provided with a similar door, but the device for moving the door is not illustrated. This arrangement of the sliding door not only holds the film, but it tightly closes the casing, thus excluding light and protecting the sensitive film. The casings or boxes 1 2 are removable, so that they, with the inclosed film, may be taken bodily from the apparatus. The shaft 6, heretofore referred to, is provided with a detent or stop-wheel 23, the form of which is most clearly shown in Figs. 3 and 4. The wheel 23 is provided with a number of projecting teeth 24, six being shown, which teeth are adapted to strike successively against the face of the cooperating detent or stop-wheel 25 on the shaft 26, which is the armature-shaft of the motor or a shaft which is constantly driven by the motor. The wheel 25 has a corresponding number of notches 27 at regular intervals around its periphery. These notches are of such size and shape that the teeth 24 can pass through them, and when the wheels 23 and 25 are rotated in the direction indicated by the arrows each tooth 24 in succession will strike the face of wheel 23, thereby bringing the film absolutely to rest at the same moment that an opening in the shutter exposes the film and will then pass through a notch, allowing the tape-film to be moved forward another step while it is covered by the shutter. To avoid the danger of the wheel 25 moving so quickly that a tooth cannot enter the proper notch, a laterally-projecting tooth 29 is provided adjacent to each notch. When a tooth 29 strikes a tooth 24, the latter tooth will be guided by the tooth 29 into the adjacent notch 27.

30 is a detent spring or pawl to prevent backward movement of the wheel 23.

I prefer to so proportion the parts above described that the wheel 23 is at rest for nine-tenths of the time in order to give to the sensitized film as long an exposure as practicable and is moving forward one-tenth of the time, and said forward movement is made to take place thirty or more times per second, preferably at least as high as forty-six times per second, although the rapidity of movement or number of times per second may be regulated as desired to give satisfactory results. The longer interval of rest of the film insures a good impression of the object projected thereon and results in a picture having clean and sharp lines, since the film has sufficient time to become steady and overcome the vibration caused by the sudden and rapid motions of the feed mechanism. On the shaft

26 or on any suitable shaft driven by the motor is a revolving disk 31, serving as a shutter for alternately exposing and covering the sensitive film. This disk, which is continuously revolving, is provided with six or any other suitable number of apertures 32 at regular intervals around it near the edge, they being so arranged that one of the apertures passes directly between the camera-lens 33 and the film each time the film is brought to rest, the light-rays passing through the opening 33' and falling on the film half-way between the reels on which the film is wound.

34 is a device for adjusting the camera-lens toward or from the film, and 35 is a device by means of which the operator can focus the camera on the object to be photographed.

While I have described the use of an intermittently-moving film and a shutter having several openings so arranged as to expose the film at proper intervals, it would be possible and within my invention to use a continuously-moving film, and also to use a shutter with a single opening, as shown in Fig. 6, the shutter revolving at a high rate of speed.

To make the apparatus move the film continuously, it will only be necessary to omit the stop-wheels 23 and 25, which arrest the rotation of the shaft 6.

Although the operation has been partially indicated in the description of the apparatus it will now be set forth more in detail.

The apparatus is first charged with a sensitive tape-film several hundred or even thousands of feet long and the motor is set in operation. Since the spring 21 causes the door 20 to clamp the film, as already described, the loose pulleys 7 18 slip without pulling said film along, but when a moving object—for example, a man gesticulating—is placed in the field of the camera and the handle 22 is pulled the film is released and the pulleys operate to pull the same along. At the same time the reel in case 2 is rotated to wind up the film, thus transferring it from the reel in case 1 to the reel in case 2. In the apparatus shown in Fig. 1 this movement is not continuous, but, as already indicated, is intermittent, the film advancing by very rapid steps, which are definitely and positively controlled by means of the peculiar detent or escapement described, and a photograph is taken after each step.

While I do not care to limit myself to any particular number of steps per second, there should be at least enough so that the eye of an observer cannot distinguish, or at least cannot clearly and positively distinguish, at a glance a difference in the position occupied by the object in the successive pictures, as illustrated in Fig. 7. A less speed in taking the pictures will cause a trembling or jerky appearance in the reproduced picture. When the movement of the object being photographed has ceased or the desired number of photographs has been obtained, the apparatus is stopped. The film is suitably treated

for developing and fixing the pictures, when it is ready for use in an exhibiting apparatus.

What I claim is—

1. An apparatus for effecting by photography a representation, suitable for reproduction, of a scene including a moving object or objects, comprising a means for intermittently projecting at such rapid rate as to result in persistence of vision images of successive positions of the object or objects in motion, as observed from a fixed and single point of view, a sensitized tape-like film, and a means for so moving the film as to cause the successive images to be received thereon separately and in a single-line sequence.
2. An apparatus for taking photographs suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film at a high rate of speed across the lens of the camera and for exposing successive portions of the film in rapid succession, substantially as set forth.
3. An apparatus for taking photographs suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film across the lens of the camera at a high rate of speed and with an intermittent motion, and for exposing successive portions of the film during the periods of rest, substantially as set forth.
4. An apparatus for taking photographs

suitable for the exhibition of objects in motion, having in combination a single camera, and means for passing a sensitized tape-film across the lens at a high rate of speed and with an intermittent motion, and for exposing successive portions of the film during the periods of rest, the periods of rest being greater than the periods of motion, substantially as set forth.

5. An unbroken transparent or translucent tape-like photographic film having thereon equidistant photographs of successive positions of an object in motion, all taken from the same point of view, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, substantially as described.

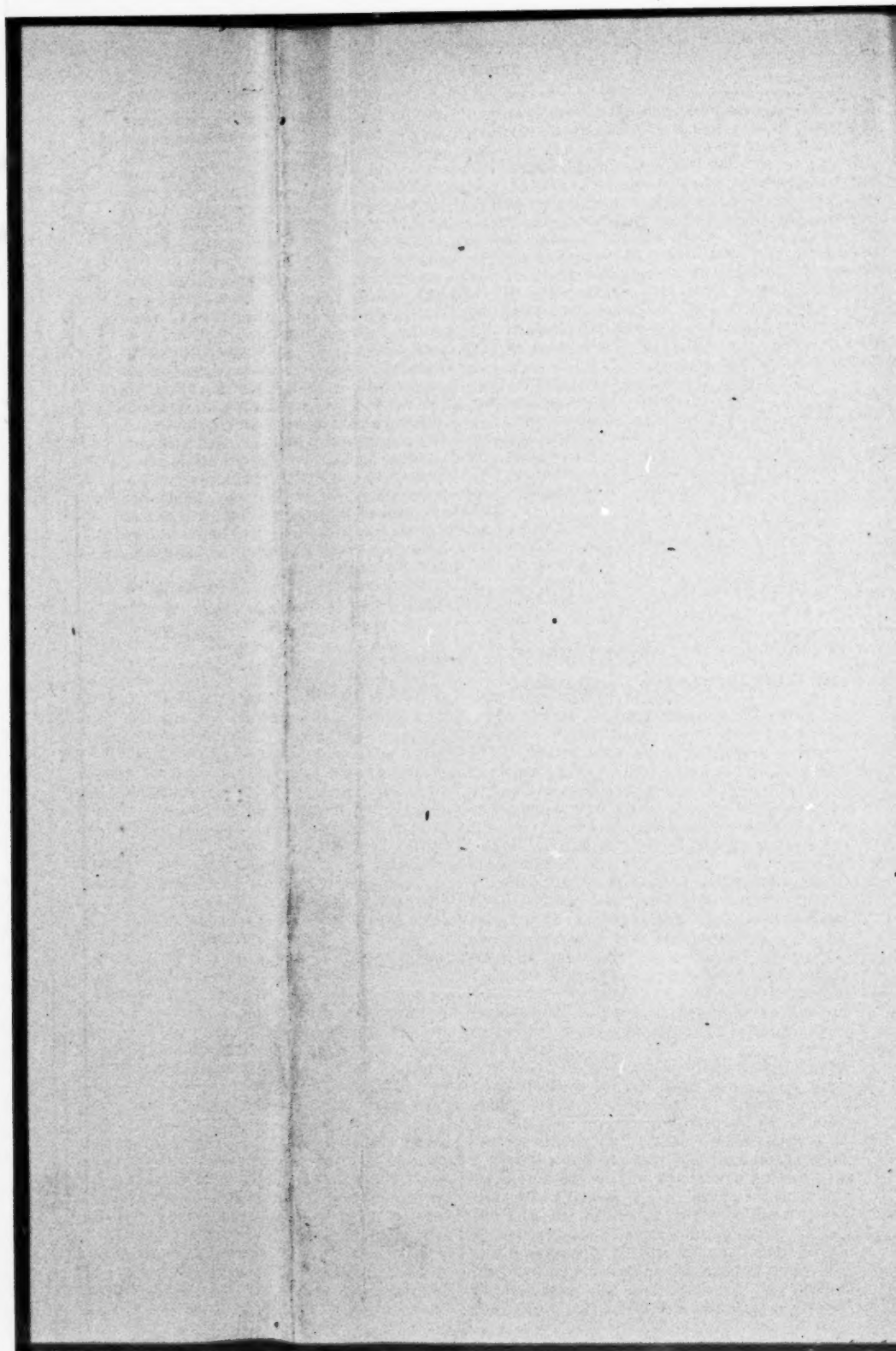
6. An unbroken transparent or translucent tape-like photographic film provided with perforated edges and having thereon equidistant photographs of successive positions of an object in motion, all taken from the same point of view, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, substantially as described.

This specification signed and witnessed this 31st day of July, 1891.

THOS. A. EDISON.

Witnesses:

JOHN F. RANDOLPH,  
FREDERICK OTT.



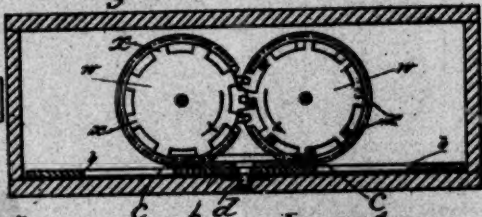
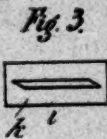
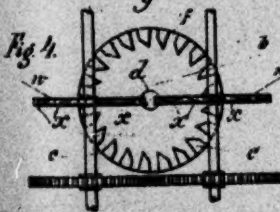
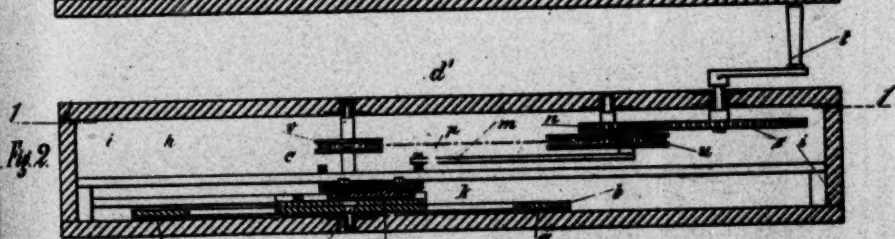
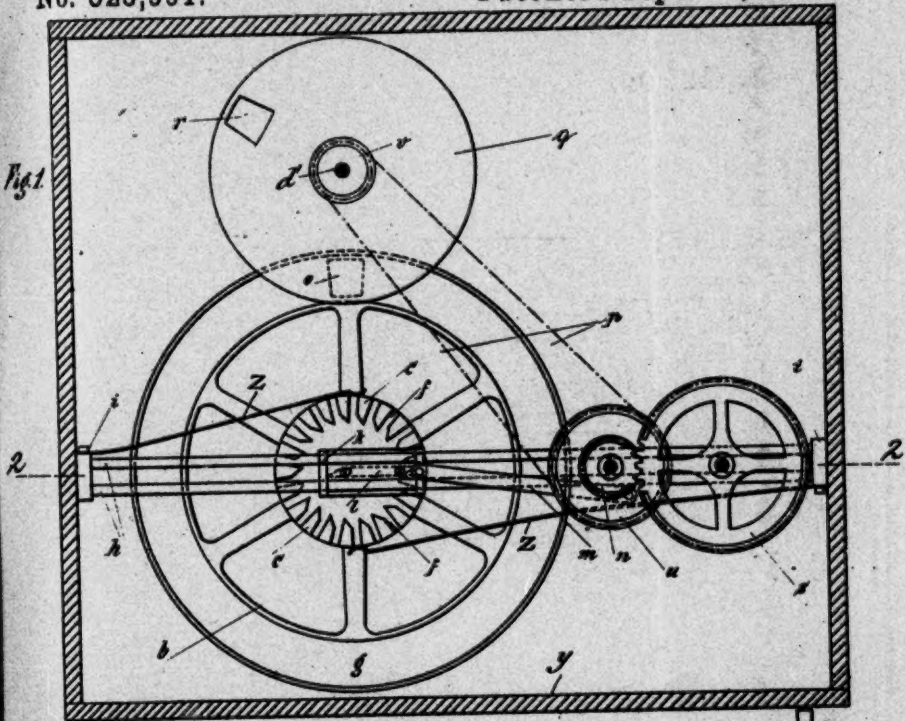
(No Model.)

2 Sheets—Sheet 1.

**M. MAYER.**  
**SERIES PHOTOGRAPHIC CAMERA.**

No. 525,991.

Patented Sept. 11, 1894.



Witnesses  
C. J. Schwarz  
E. Helant

Inventor  
Max Mayer  
By Max Berger

(No Model.)

2 Sheets—Sheet 2

M. MAYER.  
SERIES PHOTOGRAPHIC CAMERA.

No. 525,991.

Patented Sept. 11, 1894.

Fig. 7.

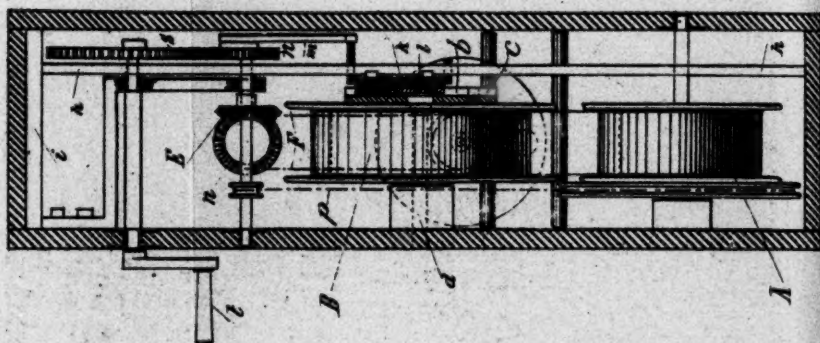
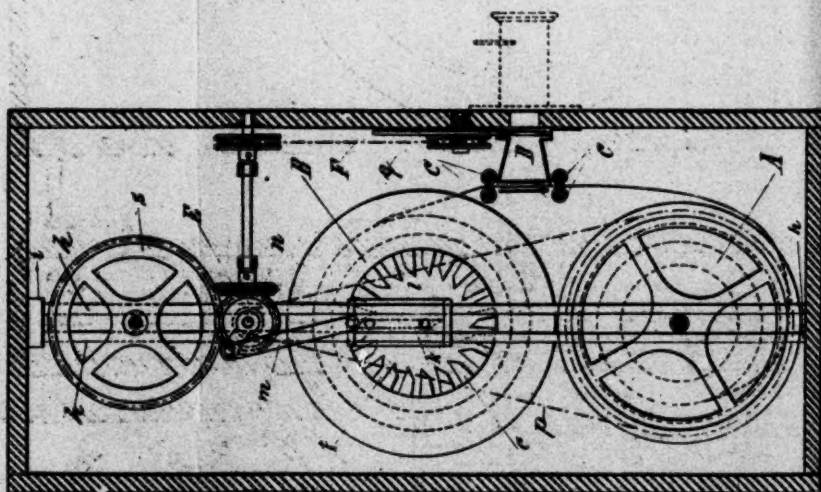


Fig. 6.



Witnesses  
A. J. Schwarz  
E. Clark

Inventor  
M. Mayer  
By *W. H. Bengt*  
1894

# UNITED STATES PATENT OFFICE.

MAX MAYER, OF MUNICH, GERMANY.

## SERIES PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 525,991, dated September 11, 1894.

Application filed September 24, 1892. Serial No. 446,788. (No model.)

*To all whom it may concern:*

Be it known that I, MAX MAYER, a subject of the King of Bavaria, residing at Munich, Bavaria, German Empire, have invented certain new and useful Improvements in Photographic Apparatus, of which the following is a specification.

My invention relates to an improvement in photographic apparatus; and it has for its object the production of an apparatus which will photograph moving objects at short intervals of time so that the pictures when developed, if exhibited to view in a stroboscope, magic-wheel, disk or similar instrument, will represent not only the general appearance of the object photographed, but also will reproduce it as if in motion.

The invention will first be described in connection with the accompanying drawings, and then pointed out in the claims.

In the drawings,—Figure 1 is a longitudinal vertical section of an apparatus embodying my improvements, taken on the line 1—1, Fig. 2. Fig. 2 is a transverse section of the same, partly in section, taken on the line 2—2, Fig. 1. Fig. 3 is a detail view. Fig. 4 is a detail of one modification of the gearing. Fig. 5 is a plan view, partly in section, of the same. Figs. 6 and 7 are vertical sections, taken in planes at right angles to each other, of another modified form of my improved apparatus.

Referring to Figs. 1 and 2, *b* is a carrier-wheel rigidly attached to a shaft, *d*, revolvably mounted in a casing, *y*, the carrier-wheel, *b*, being provided with an integral hub having an odd number of radial wedge-shaped teeth, *c*, (in this case twenty-one) forming a crown-wheel, the inner ends of these teeth being beveled or inclined inward in the direction of rotation of the wheel, as will be fully understood from the drawings. On that side of the carrier-wheel, *b*, which faces the lens, an annular sensitive plate or sheet, *g*, is mounted.

For the purpose of intermittently rotating the carrier-wheel, *b*, I provide a reciprocating tappet, *l*, having each end beveled or inclined in the same direction for engagement with the inclined inner ends of the crown-teeth, *c*. This tappet, *l*, is secured to and carried by a cross-head, *k*, guided in slides, *h*,

which are held by brackets, *i*, attached to the casing, *y*. The cross-head, *k*, and with it the tappet, *l*, is reciprocated in the slides, *h*, through the medium of a pitman, *m*, connecting it with a wrist-pin on the cog-wheel, *n*, which preferably meshes with a second cog-wheel, *s*, which may be rotated by a crank, *t*, as will be fully understood from the drawings. As the tappet, *l*, is moved to the right its right-hand inclined face engages the inner inclined end of the cog or tooth which happens to be at the extreme right-hand side of the crown-wheel or hub. The continued movement of the tappet to the right depresses the tooth, thus rotating the wheel a short distance and permitting the tappet to enter the space, *f*, between the tooth just depressed and that one immediately above it. It is plain that after the tappet has entered the space, *f*, it will move to its extreme limit at the right and back again until it has cleared the right hand teeth without rotating the wheel; but as there are an odd number of teeth in the crown-wheel, the left-hand inclined end of the tappet, in its movement to the left, will strike the inclined end of the extreme left-hand tooth, thereby forcing up the said tooth and rotating the wheel. Thus it will be seen the crown-wheel and with it the carrier-wheel, *b*, is alternately rotated and stopped.

To prevent accidental displacement of the crown-teeth, *c*, after the tappet, *l*, has released those on one side and before it has come in contact with the proper one on the opposite side, upper and lower detent-springs, *z*, are provided, these springs being secured at one end to the brackets, *i*, and arranged to bear against the crown-wheel teeth, *c*, being bent at their free ends as shown, the bend normally resting in the spaces between the teeth.

At each instant of rest of the carrier-wheel, *b*, a photographic exposure is made as herein-after set forth, and at each partial rotation of the carrier-wheel by the tappet, *l*, a fresh section (as indicated in dotted lines at *o*) of the sensitive ring, *g*, is brought opposite the lens.

The shutter I employ consists of a rotary disk, *q*, which is operated through the medium of a pulley, *v*, on the same shaft with the shutter, driven by a chain, *p*, passing round

a pulley, *u*, fixed on the same shaft as cog-wheel, *n*, which, as before stated, is rotated by the gear wheel, *s*, and crank, *i*.

A small portion of the shutter is cut away to form an aperture, *r*, which is so arranged as to register with the lens-opening when the carrier-wheel is at rest, and to be carried out of register before the carrier-wheel is rotated by the tappet.

As shown in Figs. 4 and 5 the above apparatus may be modified by substituting for the cross-head, *k*, and slides, *h*, two tappet-wheels, *w*, revolving in opposite directions and in a plane at right angles to wheel, *b*. These wheels are provided with detents in the shape of wedge-shaped teeth, lugs, or projections, *z*, which alternately engage the teeth, *c*, and cause the same intermittent movement of the wheel, *b*, the arrangement being such that as soon as a tooth, *z*, on one wheel, *w*, has left a space, *f*, between the teeth, *c*, a lug or tooth on the other wheel engages the incline on a tooth, *c*, on the opposite side and thus turns the wheel another half-tooth.

Instead of a flat sensitive plate, a web of sensitive paper may be employed, which is intermittently carried forward opposite the lens. For this purpose the apparatus is somewhat modified as illustrated in Figs. 6 and 7. In this modification *A* is a reel upon which is wound the unexposed sensitive paper which is in a continuous web whose portion already exposed is wound on a bobbin, *B*.

In order to keep the paper flat, it is passed between two sets of guide-rolls, *C*, and between two glass plates, *D*, located between the rolls and in front of the lens, as will be plain from the drawings.

The remaining construction is the same as already described in connection with Figs. 1 to 5, except that for rotating the shutter, *q*, it is necessary to introduce a bevel-gear, *E*, a counter-shaft, and gearing, *F*, after cog-wheel, *n*. The latter, moreover, is connected by gearing with reel, *A*, in order to unwind the sensitized paper somewhat more rapidly than the same is wound upon reel, *B*, in order to prevent tearing.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a photographic apparatus, the combi-

nation, with a crown-wheel having pallet-teeth, a tappet-device actuating the pallet-teeth; and means for operating the tappet device, of a sensitized surface support moved by the crown-wheel, and a surface exposing shutter, substantially as described and for the purpose set forth.

2. In a photographic apparatus, the combination, with a crown-wheel having pallet-teeth, a tappet-device in engagement with the pallet-teeth, and a sensitized surface support attached to the crown-wheel, of a shutter and means for simultaneously moving the shutter and actuating the tappet device, substantially as set forth.

3. In a photographic apparatus, the combination, with a crown-wheel having pallet-teeth, a tappet-device in engagement with the pallet-teeth, and a sensitized surface support attached to the crown-wheel, of a rotary shutter having an exposure-aperture, and means for simultaneously moving the shutter and actuating the tappet device, substantially as set forth.

4. The combination, with a crown-wheel having pallet-teeth, and a sensitized surface support attached to the crown-wheel, of a pair of tappet wheels revolving in opposite directions in a plane at right angles to the crown-wheel, each tappet wheel being provided with tappings arranged in contact with the pallet-teeth, and mechanism for revolving the tappet wheels substantially as described.

5. In a photographic apparatus, the combination, with a carrier wheel having a hub provided with pallet teeth, of a pair of tappet wheels revolving in opposite directions in a plane at right angles to the carrier wheel, each tappet wheel being provided with tappings arranged to contact with the pallet-teeth, and mechanism for revolving the tappet wheels, whereby the carrier wheel is alternately rotated and then held stationary, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MAX MAYER.

Witnesses:

ALBERT WEICKMANN,  
KARL MAYER.

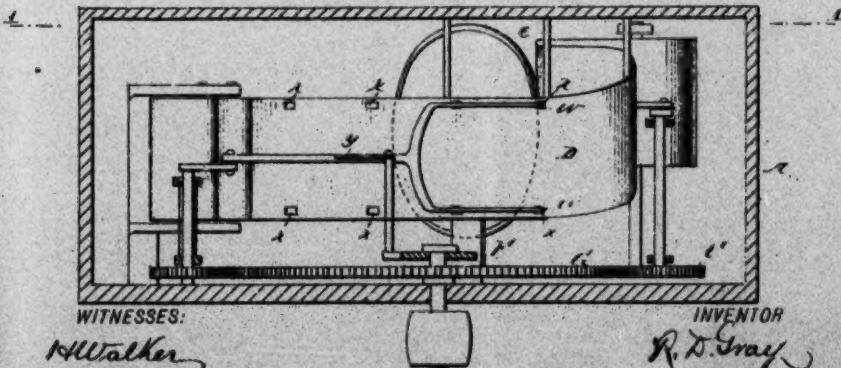
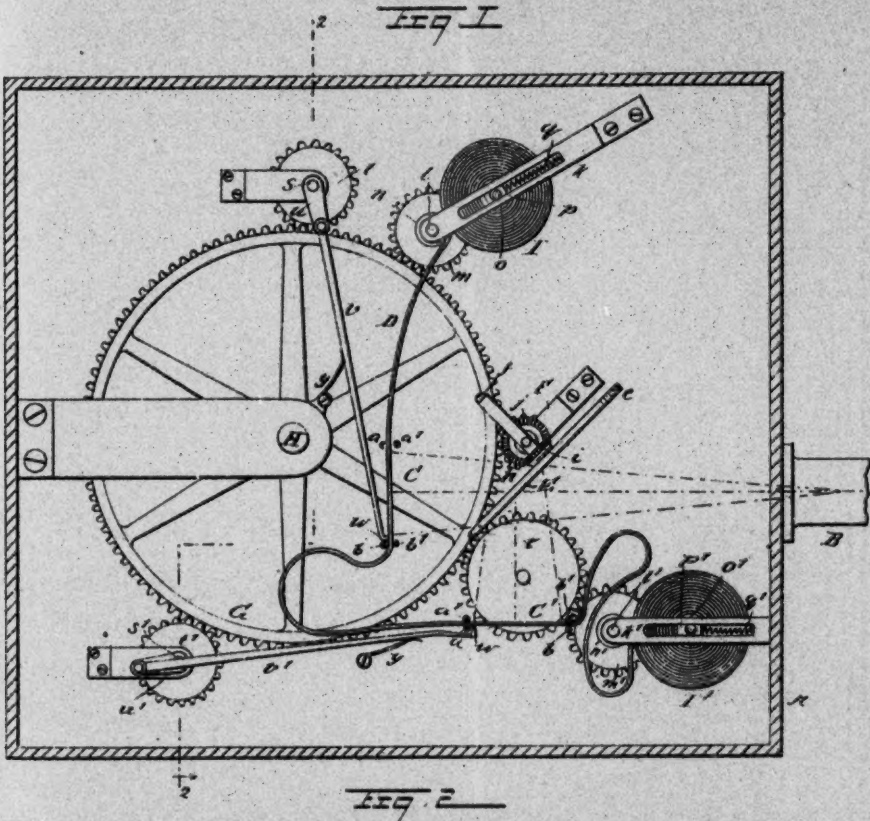
(No Model.)

2 Sheets—Sheet 1.

R. D. GRAY.  
SERIES PHOTOGRAPHIC CAMERA.

No. 540,545.

Patented June 4, 1895.



WITNESSES:

*H. Walker*  
*C. M. Hopkins*

INVENTOR

*R. D. Gray*  
BY *Mum & B*

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

R. D. GRAY.  
SERIES PHOTOGRAPHIC CAMERA.

No. 540,545.

Patented June 4, 1895.

Fig 3

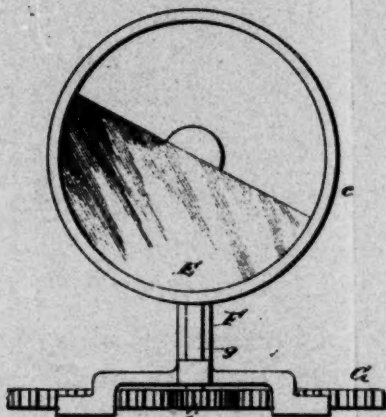


Fig 4

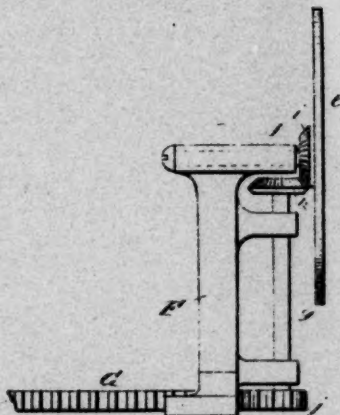
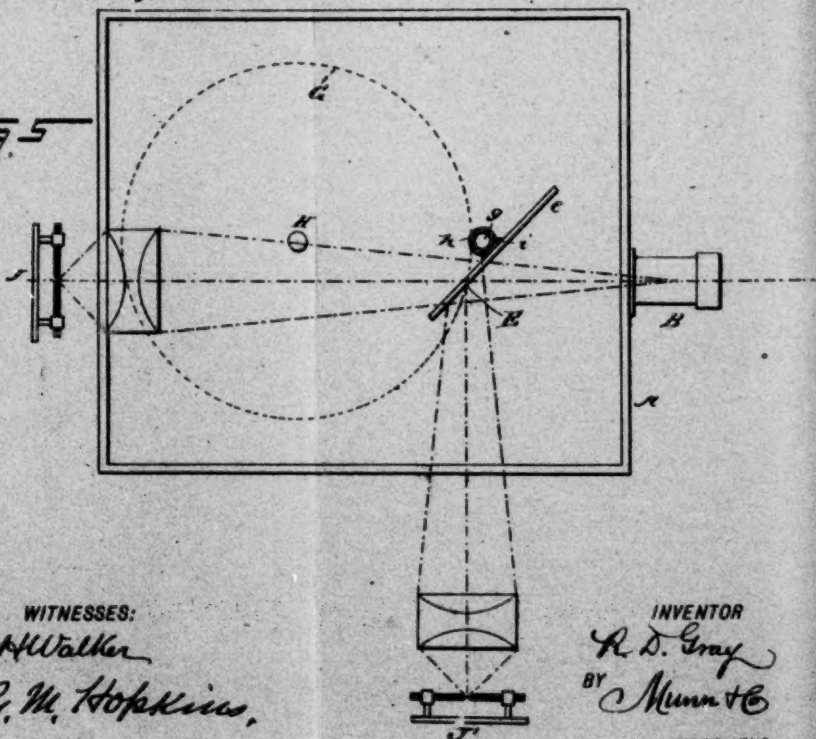


Fig 5



WITNESSES:

A. Walker  
C. M. Hopkins,

INVENTOR

R. D. Gray  
BY Munn & Co

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ROBERT D. GRAY, OF NEW YORK, N. Y.

## SERIES PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 540,545, dated June 4, 1895.

Application filed March 9, 1895. Serial No. 541,135. (No model.)

To all whom it may concern.

Be it known that I, ROBERT D. GRAY, of New York city, in the county and State of New York, have invented a new and Improved Photographic Camera, of which the following is a full, clear, and exact description.

The object of my invention is to construct a photographic camera for taking a series of photographic pictures of moving objects, and for projecting the pictures thus produced on a screen by the aid of a suitable illuminant and light-controlling devices attached to the camera.

The object is also to provide apparatus for taking a continuous series of pictures so that all the movements of the object are represented in the pictures when projected.

My object is also to produce two series of photographs, the separate pictures of which will be made in alternation, the movement of the sensitive film required for bringing it into position for the exposure of one series alternating with the movement required to bring another portion of the film into position for exposure for a picture of the other series, so that the said movements may each be made with one half the speed that would be required for producing a succession of exposures with intervals of darkness.

My invention consists in a camera provided with an objective, a strip of unexposed sensitive film, guides for holding the film in two focal planes at right angles to each other, a plane segmental revolving mirror arranged on a plane at an angle of forty-five degrees with the axial line of the objective, and constructed to eclipse the direct light beam entering the camera and at the same time reflect it laterally to the portion of the sensitive film lying parallel to the axial line of the lens.

It also consists in devices for moving two portions of the film in alternation along the two focal planes by a step-by-step movement, all as hereinafter more fully described.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a horizontal section of my improved camera, taken on line 1 1 in Fig. 2. Fig. 2 is a vertical section of the same, taken

on line 2 2 in Fig. 1. Fig. 3 is a front elevation of the segmental revolving mirror. Fig. 4 is a side elevation of the same, and Fig. 5 is a plan view showing the application of the 55 camera to projection.

The box A, which contains the mechanical portions of my improved camera, is provided with a photographic lens B, and is furnished with two film guides C, C', arranged at right 60 angles to each other, each guide being composed of four smaller rollers  $a a'$ ,  $b b'$ , between which the sensitive strip D passes, the rollers  $a b$  being at one side of the portion of the strip to be exposed, and the rollers  $a' b'$  being 65 at the other side.

The sensitive strip D is designed to receive two series of impressions, one above the other, and since the pictures of the two series are taken at different times with the same 70 lens, the portions of the strip receiving the impression are held in the same horizontal plane, as shown in Fig. 2. On a line bisecting the angle formed by prolonging the two focal planes represented by the portions of 75 the film in the film guides, is arranged a revolving segmental mirror E, whose plane of rotation intersects the prolongation of the axis of the lens B at an angle of forty-five degrees, so that when the mirror revolves, it intercepts the beam of light entering the camera once during each revolution. The direct beam passes to the portion of the film in the guide C, and the reflected beam passes laterally at right angles to the portion of the film in the 85 guide C'. The duration of the time during which the beam is reflected is proportionate to the time during which the direct beam is passing, so that the exposures by the direct beam and reflected beam are equal. The two 90 series of pictures being thus made on the same strip, one series above the other, the upper half of the film being used in the present case for the series of pictures taken by the direct beam, and the lower half being used for 95 the pictures taken by the reflected beam, it is necessary to elevate the film-guide C', as shown in Fig. 2, to bring the lower portion of the film into position for exposure.

It is obviously possible to produce the necessary movements of the film and the rotary motion of the segmental mirror by different

means. I shall proceed to describe one way of doing it, but I do not limit myself to this particular way.

The segmental mirror E is mounted on a wheel *e* carried by the horizontal shaft *f* journaled in the standard F. The mirror covers one half of the wheel, or as much more as may be required to secure an equal illumination of the film. The portion of the wheel not covered by the mirror is left open and unobstructed to allow the direct light beam from the lens to proceed to the film in the guide C. In the standard F is journaled the vertical shaft *g*, which carries at its upper end a bevel wheel *h* which engages a bevel pinion *i* secured to the shaft *f*. The lower end of the shaft *g* carries a spur pinion *j*. The standard F is secured to the bottom of the camera box A, and the pinion *j* is engaged by a spur wheel G, mounted on the shaft H journaled in bearings in the camera box. In a bridge *k* at one side of the wheel G is journaled a shaft *l*, to which is secured a pinion *m*, which is engaged by the spur wheel G, and upon the shaft *l* is secured a roller *n*, against which is pressed a roll I, of exposed sensitized film. The roller *o* on which the exposed sensitized film is wound is journaled at one end in a sliding journal box *p*, placed in a slot in the bridge *k* and pressed forward by a spiral spring *q* placed in the slot of the bridge. The other end of the roller *o* is journaled in a similar spring-pressed sliding box below the roll of film. When the wheel G, and consequently the wheel *m* and roller *n* are revolved, the roll I is turned in the direction required for rolling the film. At the opposite side of the camera box is arranged a bridge *k'* carrying a wheel *m'*, a roller *n'* a roller *o'* carrying the roll I' of unexposed film, the roller *o'* being journaled in a sliding journal box *p'* pressed forward toward the roller *n'* by the spring *q'*. The film D, which is continuous from the roll I' to the roll I, passes through the film guides CC', and as it is unwound from the roll *o'* and wound upon the roll *o*, the said roll *o'* is arranged to revolve in the opposite direction. To secure this movement and at the same time to increase the distance of the roll of unexposed film from the film guides, an intermediate wheel *r* is placed between the wheel *m'* and the main wheel G. On opposite sides of the wheel G are journaled shafts *s s'*, carrying spur wheels *t t'*, engaged by the spur wheel G. To the shafts *s s'* are secured cranks *u u'*, pivotally connected with rods *v v'*, which are forked at their free ends, the ends of the tines of the forks being bent at right angles, and beveled to form hooks *w* for engagement with the film D, which is provided at its upper and lower edges with perforations *x* for receiving the hooks *w* at the ends of the forks. The forked rods *v v'* are arranged to act on the portions of the film held by the guides C C', and are pressed forward against the film by springs *y* secured to a fixed portion of the

apparatus. The hooks *w* are thus arranged to reciprocate in planes at right angles to each other. They are also geared so as to work in alternation.

The beam of light entering the camera through the lens B, passes to the portion of the film in the guide C through the open portion of the wheel *e*, while the portion of the film being exposed is at rest. As soon as the mirror E in its revolution intersects the light beam, the portion of the film in the guide C is exposed by the reflected beam and the portion just exposed by the direct beam is moved along one space by the hooks *w* of the rod *v*, there being sufficient slack in the film D between the guides C and C' to allow of this movement. When the direct beam is again allowed to fall on the portion of the film in the guide C, the portion of the film in the guide C' just exposed by the reflected beam is moved along by the hooks *w* of the rod *v'*, there being sufficient slack in the film to admit of this movement. In this manner the exposures are made in alternation, and the film is moved along and rolled and unrolled automatically.

When the film has been developed and printed on a similar film for projection, the positive film is placed in the camera and illuminated by two sources of light J, J', which in the present case are electric arc lights, the light being converged by condensers as in an ordinary optical lantern. The film is drawn along by the step-by-step motion, as described in the operation of taking the impressions and the projection is alternately by direct and reflected beams.

The picture which is reversed in taking by reflection is corrected when reversed in projection by reflection.

It is obvious that by means of my improvement I am enabled to make continuous exposures without any periods of darkness, and that I am enabled to project the pictures without any interruption of the light, thus producing better effects on a larger scale than is possible with the methods and apparatus heretofore in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a photographic camera of the character described, the combination of a lens, two film guides arranged at right angles to each other, means for moving forward the film in the guides, and a segmental mirror arranged to act as a shutter for one field and a means of directing light to the other field, substantially as specified.

2. In a photographic camera of the character described, the combination of a photographic lens, two film guides placed at right angles to each other, a revoluble segmental mirror placed in a plane intersecting the angles formed by the planes of the film guides, and mechanism for moving the film forward

with a step-by-step motion, substantially as specified.

3. In a camera for taking negatives of moving objects, the combination of a lens, two film guides, a perforated film passing through the guides, a revolving segmental mirror, and reciprocating hooks for carrying the film through the guides, as specified.

4. The combination, with a camera provided with a lens, revolving segmental mirror, and duplicate film-moving mechanism, of light furnishing and controlling devices for projecting a direct and a reflected beam in alternation.

5. The method of taking a series of photographic pictures to represent motion, which consists in exposing a sensitive film to a continuous beam of light directed on two fields of exposure in alternation, thereby forming a

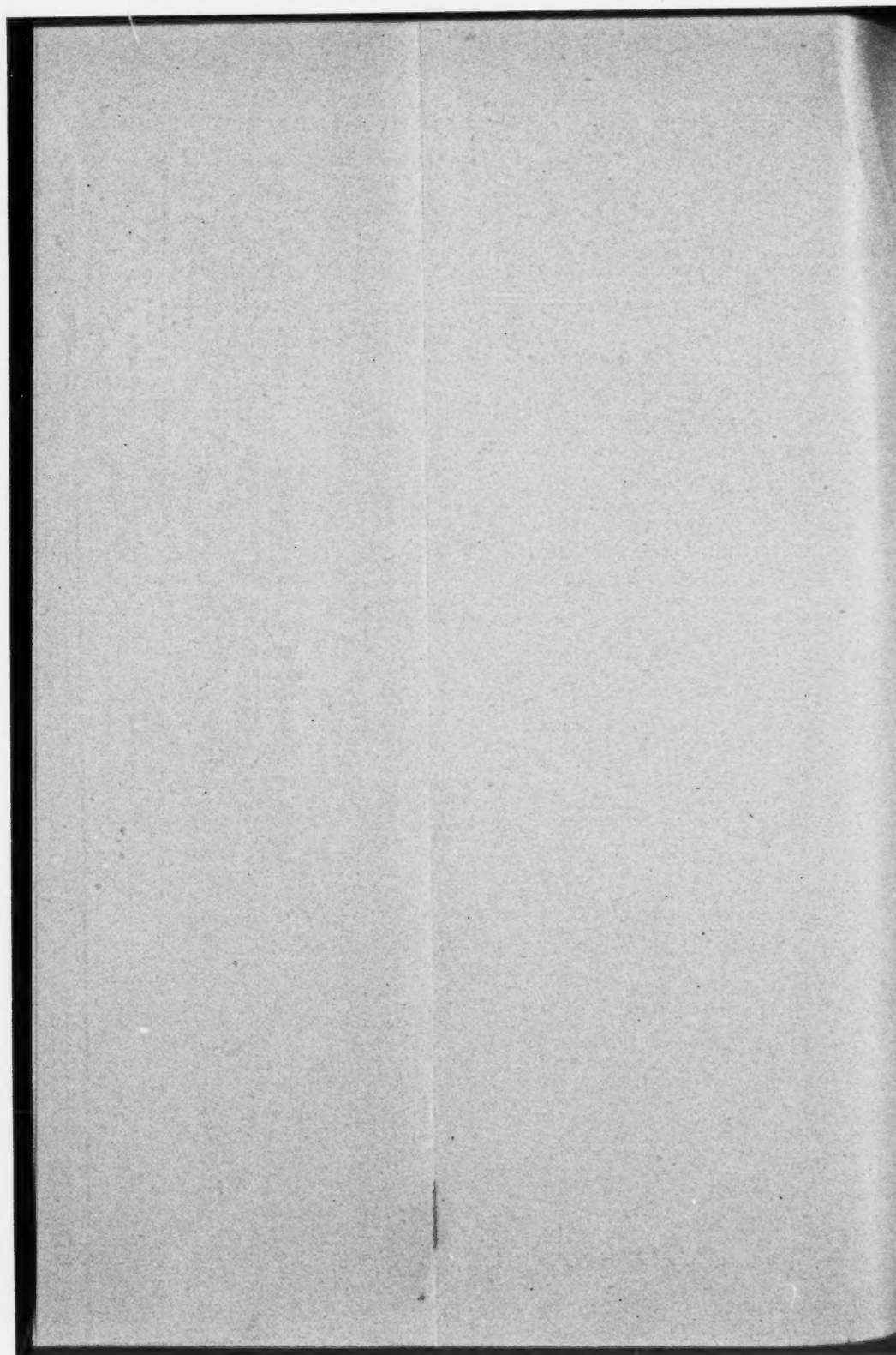
series of images representing all the movements of the moving body.

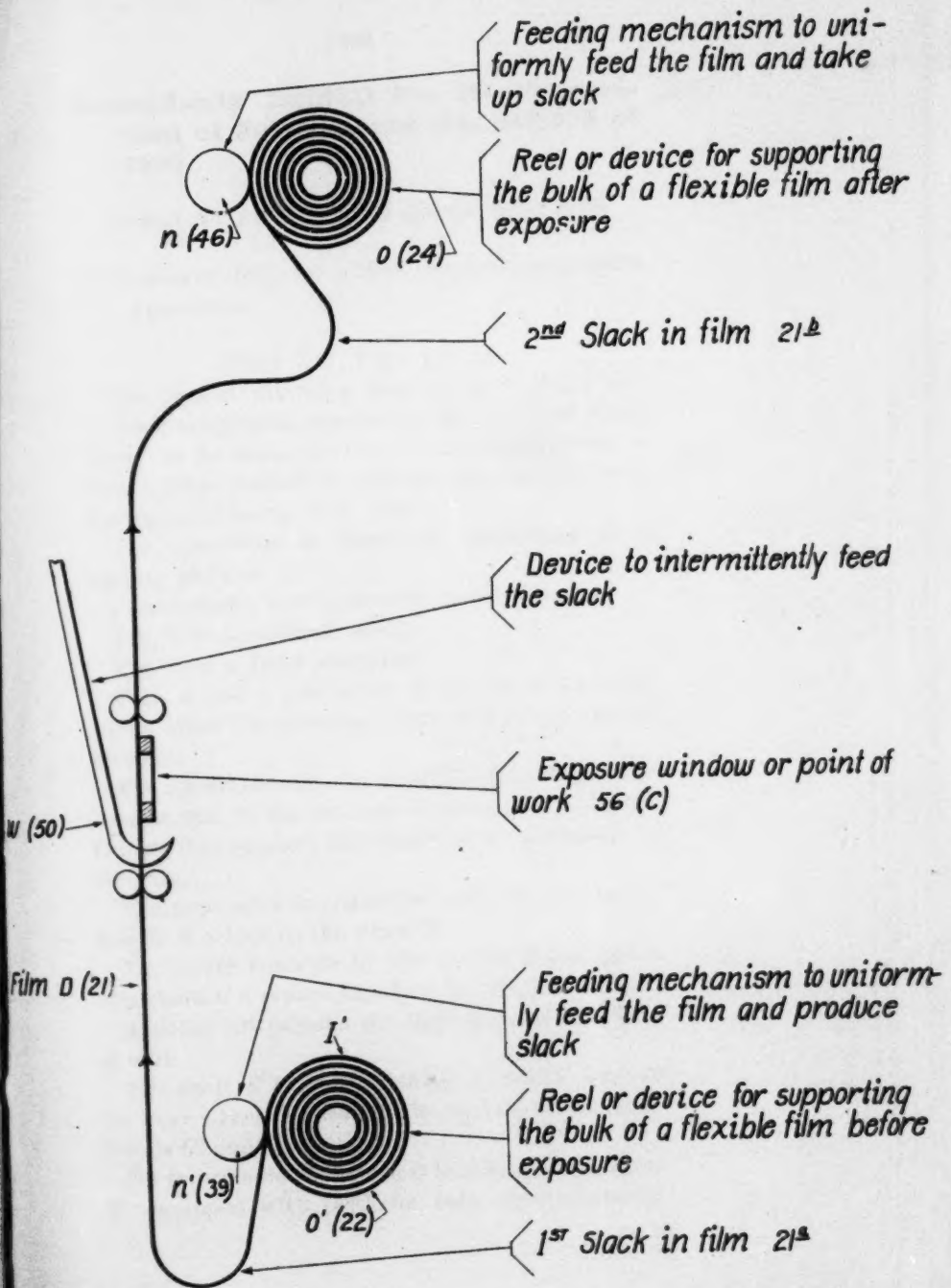
6. The method of taking a series of photographic pictures, which consists in taking an image on a sensitized surface by a direct continuous beam of light, then covering the exposed surface and replacing the exposed surface while covered with an unexposed sensitized surface and simultaneously deflecting the light beam to another surface, then returning the direct beam to the replaced surface, and at the same time replacing the surface exposed by the deflected beam by an unexposed surface, as herein specified.

ROBERT D. GRAY.

Witnesses:

C. SEDGWICK,  
F. W. HANAFORD





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**Defendants' Exhibit No. 28—Translation of Joly Patent No. 249,875 of 1895.** 3697

Patent No. 249875, Dated August 26th, 1895.

To Monsieur Joly, for a New Photochronographic Apparatus.

Plate XII, Figs. 1 to 4..

The present invention has for its object a new photochronographic apparatus, by the aid of which there can be taken during a determined period of time a large number of photographs, each of these photographs being very clear. 3698

The apparatus is composed essentially of a moving pictures.

I have shown this apparatus in the drawing.

Fig. 1 is a vertical section.

Fig. 2 is a front elevation.

Figs. 3 and 4 are views of details of members which cause the arresting of the film at the desired moment.

The apparatus can also serve as a kinetoscope for wooden box, in the interior of which are two metal frames that support the members we are about to describe. 3699

The apparatus is controlled with the aid of the handle *A* acting on the wheel *B*.

The latter controls by the intermediate agency of a chain *C* a pinion keyed on the shaft *E*.

A pulley *D*<sup>1</sup> permits the tightening of the chain at will.

The shaft *E* carries a pinion *F*, which controls the gear-wheel *G* through the agency of the gear-wheels *G*<sup>1</sup> and *G*<sup>2</sup>.

On the spindle of the wheel *G* is mounted a roller *H*, equipped with teeth on both circumferences;

3700

these teeth penetrate into the holes made along the entire length of the strip of film *I*.

A pressure pulley *H*<sup>1</sup> keeps the film pressed against the roller *H* and assures the advancement.

A spring acts upon the arm which supports the spindle of this pulley *H*<sup>1</sup>.

When the roller *H* rotates it draws off the film which is wound upon the reel *J*.

After having gone beyond the roller *H* the film passes between two rollers *K K*<sup>1</sup> which direct its course.

3701

The film then descends vertically and enters the dark room *L*.

On leaving the dark room it passes over a roller *M* and into the interior of a frame *N*, which is supported by the linked arms *N*<sup>1</sup>.

From this frame the film passes between two rollers *O* and *O*<sup>1</sup>, over the toothed roller *P*, over the roller *Q*, and goes to be wound up on the reel *R*.

The shaft *E* carries a pinion *S* which, by the agency of the wheel *S*<sup>1</sup>, controls the wheel *T* mounted on the spindle of the roller *P*.

3702

The reel *R* is actuated by a spring which is placed in the drum *U*.

Let us suppose, in order to explain the working of the apparatus, that the film has been put in place and let us see how the different members work.

The shaft *E* being set in motion, the roller *H* rotates and winds off the film which is on the reel *J*.

When the photograph is taken the crank-disc *V* causes the frame *N* to oscillate around its joint pin *N*<sup>2</sup> and forces it by the agency of the connecting-rod *X* to advance towards the front part of the apparatus.

3703

The film, which is held in the frame *N*, is carried along in this movement, being held on the lower edge by the teeth of the roller *P* it cannot go backwards; therefore, the part that has just had an impression made upon it will have to leave the dark room and it will be replaced by a new portion of film that has not had an impression made upon it.

The shaft *E* continuing to rotate the frame *N* returns to the back, the loop it had formed in advancing will no longer be held taut and the roller *P* will cause the film that has formed this loop to travel downwards. 3704

The roller *H*, on its side, will have unwound from the reel *J* a quantity of film corresponding to that which has been wound up at the lower end on the reel *R*.

Before beginning the working, at the moment when the film is introduced into the apparatus, a loop is made by hand between the roller *H* and the rollers *K* and *K*<sup>1</sup>; as there is wound up on the reel *R* an amount of film equal to that which is paid off from the reel *J* this fold will be preserved during the entire time that the apparatus is working. 3705

There results from this that the roller *P* not drawing on a film which is stretched tight, the latter runs no risk of being torn.

At the beginning of the operation the spring which is contained in the drum *U* is about half tense.

To maintain the tension of this spring, since it is the spring which causes the rotation of the reel *R*, I arrange on the spindle of the roller *P* a wheel *Y* which, by the agency of the chain *Y*<sup>1</sup>, controls the pinion *Y*<sup>2</sup>.

There is set on the spindle of this pinion *Y*<sup>2</sup> another pinion *Z* engaging with the wheel *Z*<sup>1</sup>, that causes the winding-up of the spring.

3706

During the working of the apparatus the tension of this spring, therefore, will be constantly maintained.

The shutter *a* is set on a spindle *b* carrying a worm-wheel *c* engaging with a work *d* set on the shaft *E*.

3707

In order that the film may advance easily from its entrance in the dark room and at the same time be arrested during the exposure, I arrange, a little above the opening of the dark room, a joint *e* carrying a tenon *e'* which moves in a slot arranged in the upper part of a lever *f* fulcrumed around the spindle *g*, the lower extremity of which lever also has a slot into which there enters a tenon fixed at the end of the rod *h*, united with the collar of the eccentric *i*.

This eccentric is set on the shaft *E*. At the moment when the frame *N* advances in a way to cause the descent of the part of the film which is to be impressed by the picture the rod *h* advances also; the lever *f* swinging around the spindle *g* removes at this moment the joint *e* of the plate *j* against which the film is supported.

3708

This plate carries a band of velvet that prevents the film from being ruined by the friction.

This plate *j*, as Fig. 3 shows, is removable, so that the band of velvet can be easily replaced when it is worn or when it is full of dust.

During the entire time that the frame *N* is advancing towards the front part of the apparatus, the joint *e* remains at a distance from the plate *j*; there is, therefore, nothing to prevent the easy passage of the film.

As soon as the frame *N* approaches the end of its course, the eccentric brings the lever *f* forward, and the joint *e* coming into contact with the plate *j* the film is arrested.

It is thus seen that if the film were inclined to continue its downward movement it would be arrested by the joint *e*, the pressure which this joint exerts upon the plate *j* permits, besides, the roller *P* to keep the film constantly taut in the dark room.

When the film is arrested, one of the openings made in the shutter comes between the dark room and the objective.

Thus the film has the impression made upon it at the moment it is arrested.

A diaphragm with a variable opening is placed in the dark room. 3710

In small sizes of the apparatus the roller *H* may be omitted when necessary.

The film unwinds under the action of the frame *N*.

When it is desired to use the apparatus as a kinetoscope, the back of the dark room is replaced by a translucent glass, the film is continuously unwound, as I have explained above, and by placing behind the apparatus a sufficient source of light equipped with a reflector and a condenser the picture which is on the film can be thrown on a screen. 3711

Moreover, this picture cannot be projected excepting when the film has been stopped, for, as I have remarked above, it is only at this moment that one of the openings of the shutter comes before the dark room and allows the rays of light to traverse the objective.

On account of the method of controlling the film, a very long film which has consequently a relatively high weight can be used.

The frame *N* which causes this advancement of the film is not obliged in reality to act directly on the reel since there is constantly a certain length of film already paid off.

3712

Therefore this frame does not itself produce the rotation of the reel.

In certain cases a single toothed roller would suffice, provided it had a sufficiently large diameter.

The two reels in these circumstances being placed on the same side of the apparatus the teeth of the roller would cause, on the one side, the paying off, on the other, the winding up of the film.

3713

I reserve for myself the right of replacing the frame *N* by an eccentric roller which will communicate the same movement to the film as this frame.

(The claims follow.)

Patent of Addition, Dated July 23d, 1896.

Plates XII and XIII, Figs. 5 to 10.

The present patent of addition has for its object certain improvements which I have made in the photochronographic apparatus described in my patent.

3714

I have represented, by way of example, my new photochronographic apparatus modified and equipped with the improvements which are the object of the present patent of addition.

Fig. 5, rear elevation of the apparatus.

Fig. 6, transverse section.

Fig. 7, side elevation.

Fig. 8, plan showing the mode of acting upon the shutter.

Figs. 9 and 10, details.

My apparatus always contains the two drawing-off rollers *A* and *B*, with the projecting parts made in the two extremities.

3715

The strip of film is wound up at the upper end on a reel  $A^1$ , on leaving this reel it forms a loop, then passes over the drawing-off roller  $A$  behind the dark room  $A^2$ , and finally over the roller  $B$  that has an alternating movement which causes the advancing of the film by jerks, as this is necessary for the right working of the apparatus.

The driving shaft is in  $G$ ; it can be actuated by a handle fixed on its end and not shown in the drawing.

On this shaft is keyed the gear-wheel  $H$ , that engages with the wheel  $H^1$  mounted on the spindle  $h$ ; the drawing-off roller  $A$  is set on this spindle  $h$ . 3716

There is set on the same spindle a gear-wheel  $h^1$ , which transmits its movement to the pinion  $h_2$ , set on the spindle  $E_1$ .

On this intermediate spindle  $E^1$  are keyed:

1. A bevel pinion  $e$  which engages with another bevel pinion  $e^1$  set directly on the spindle of the shutter  $P$ .

2. A plate on two points of the circumference of which is attached a connecting-rod  $D$ , that is fulcrumed at its lower end on a small crank  $c^1$  carrying a pawl.

This pawl acts on a ratchet wheel  $c$  set on the spindle  $C$  at the end of which is secured the drawing-off wheel  $B$ . 3717

It is thus evident from what has gone before that if the wheel  $G$  receives a continuous rotary movement, the drawing-off roller  $A$  will rotate continuously, as well as the shutter, but the drawing-off roller  $B$  will turn by jerks under the action of the plate  $E$ , of the connecting-rod  $D$ , of the pawl  $c_1$ , and of the ratchet-wheel  $c$ .

The apparatus, therefore, will work in the same manner as that which was the object of my patent,

3718

that is to say, that the film will be motionless during the projection, and that, further, the pull necessary for the paying-off of the film will be made on a loop of this latter and not on the reel holding the film itself, an essential condition for the right working of the apparatus.

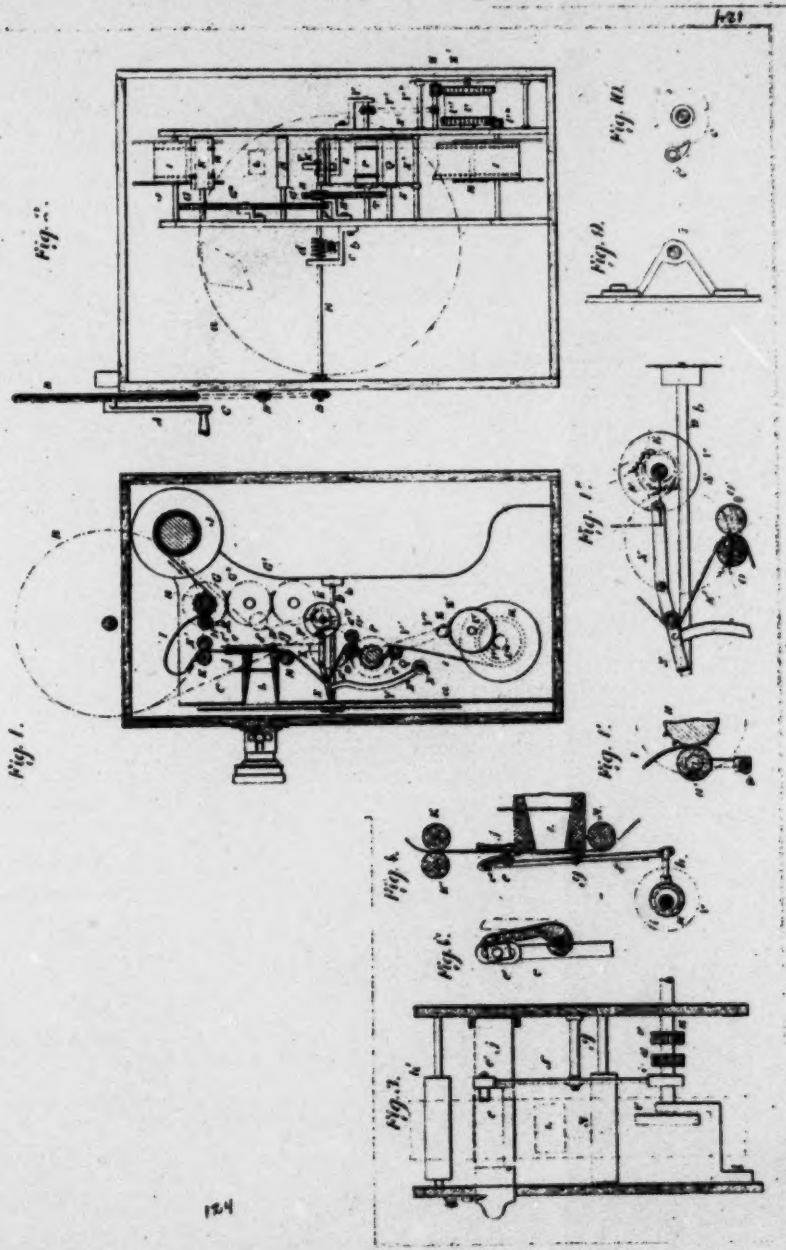
3719

It is understood that I reserve for myself, and exclusively for the projection of positives on screens, the combining of my apparatus with a phonograph working synchronously with the projector apparatus in such manner that the spectators have at the same time the illusion of motion and of speech.

(The claims follow.)

3720

APPAREIL CHRONOPHOTOGRAPHIQUE, PAR M. JOLY.



Imprimerie Meline

Boulevard des Capucines 55.

## APPAREIL CHRONOPHOTOGRAPHIQUE. PAR M. JOLY.

Fig. 5.

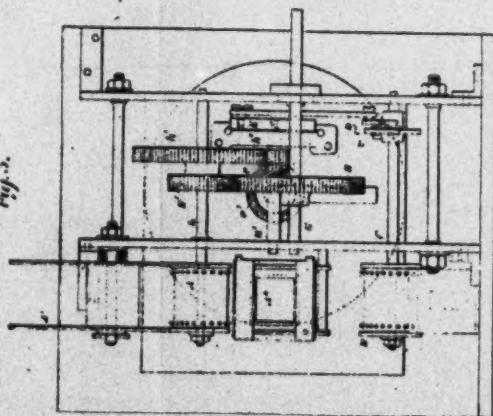


Fig. 6.

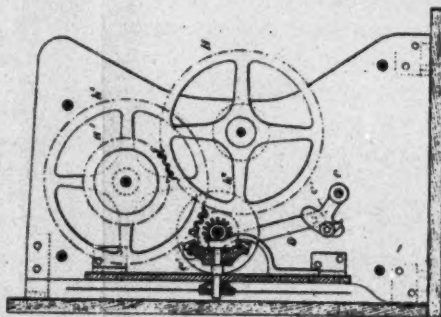


Fig. 7.

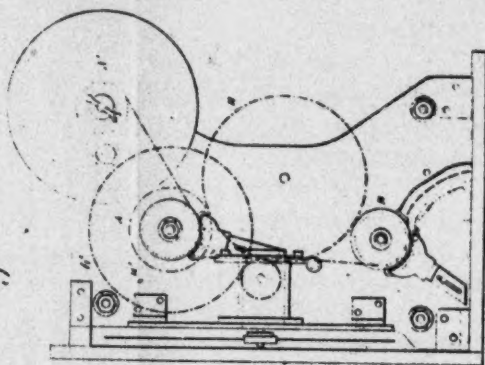
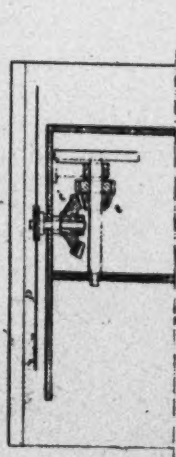


Fig. 8.



1243.

(No Model.)

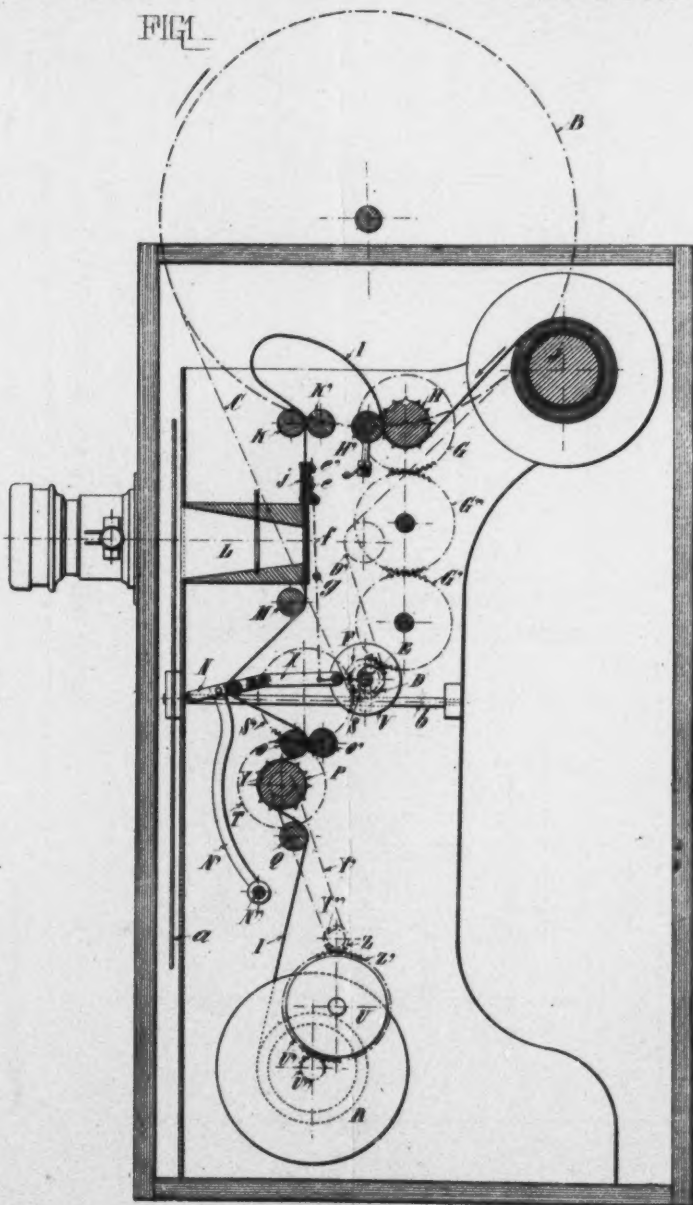
3 Sheets—Sheet 1.

M. J. H. JOLY.  
CHRONOPHOTOGRAPHIC APPARATUS.

No. 569,875.

Patented Oct. 20, 1896.

FIG 1



Witnesses.  
Bene

Inventor.  
Marie Joseph Henri Joly



(No Model.)

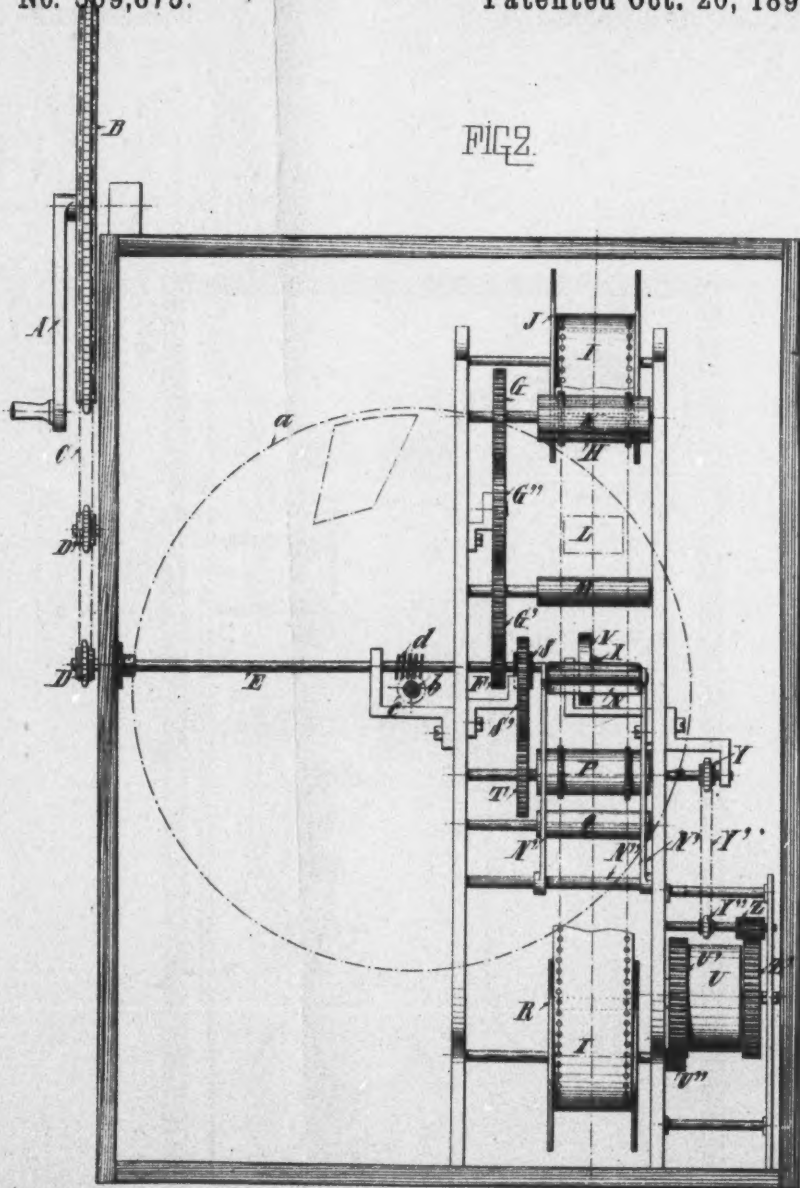
3 Sheets—Sheet 2.

M. J. H. JOLY.  
CHRONOPHOTOGRAPHIC APPARATUS.

No. 569,875.

Patented Oct. 20, 1896.

FIG 2.



Witnesses.  
G. W. Lewis  
W. R. Edson.

Inventor.  
Marie Joseph Henri Joly  
by J. J. J. J. J.



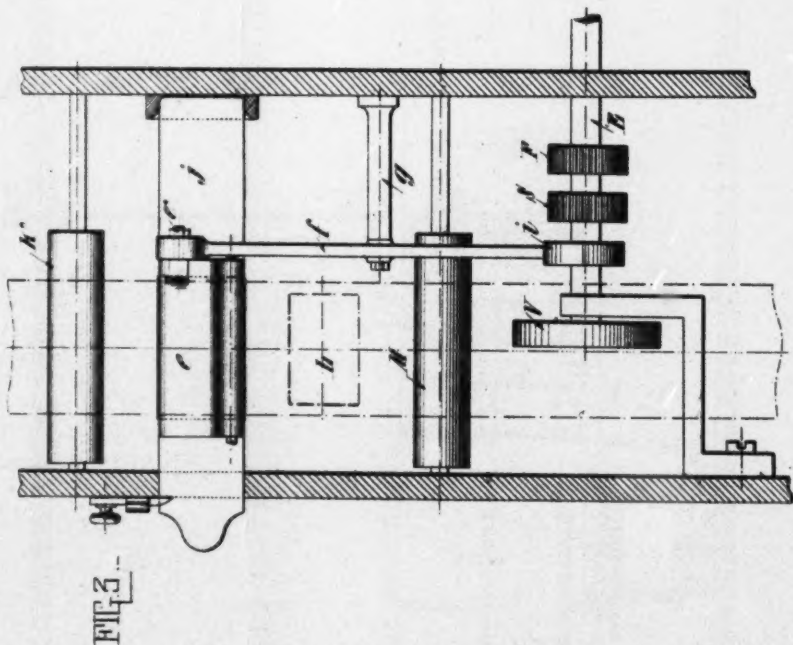
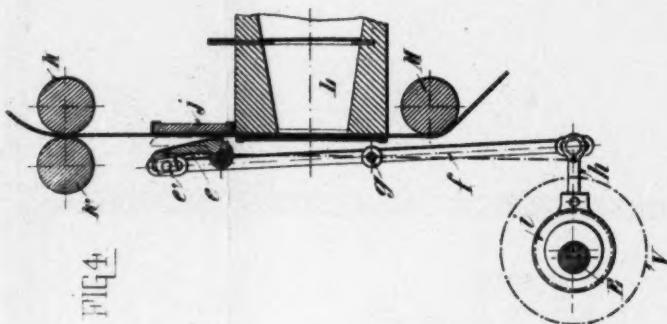
(No Model.)

3 Sheets—Sheet 3.

M. J. H. JOLY.  
CHRONOPHOTOGRAPHIC APPARATUS.

**No. 569,875.**

Patented Oct. 20, 1896.



Witnesses.  
*Rev Lewis*  
*W.R. Eddles.*

Inventor.  
Marie Joseph Marie Joly  
by Tolson Mauro,  
his attorney.

# UNITED STATES PATENT OFFICE.

MARIE JOSEPH HENRI JOLY, OF PARIS, FRANCE.

## CHRONOPHOTOGRAPHIC APPARATUS

SPECIFICATION forming part of Letters Patent No. 569,875, dated October 20, 1898.

Application filed June 5, 1896. Serial No. 594,437. (No model.) Patented in France August 26, 1895, No. 249,875.

*To all whom it may concern:*

Be it known that I, MARIE JOSEPH HENRI JOLY, a citizen of the Republic of France, and a resident of Paris, (Seine,) in said Republic, have invented certain new and useful Improvements in Chronophotographic Apparatus, (for which a patent has been secured in France, No. 249,875, dated August 26, 1895,) of which the following is a full, clear, and exact description.

This invention relates to a chronophotographic apparatus whereby a large number of photographs, each very clear, may be taken within a given time. It may serve also as a kinetoscope.

In the accompanying drawings, which form part of this specification, by way of illustrating the invention, an apparatus constructed in accordance with the said invention is represented.

Figure 1 is a vertical section of such apparatus; Fig. 2, a front elevation of the same, and Figs. 3 and 4 detail views of the means for producing the arrest of the film at the moment desired.

The apparatus consists of a wooden box, in the interior of which are two metallic frames that support the working parts to be described.

The control of the apparatus is obtained by the aid of a crank A, connected with the wheel B. This latter operates a pinion D, keyed on the shaft E, through a chain C. A roller D' enables the chain to be stretched at will. The shaft E carries a pinion F, which operates the wheel G through the intermediates G' G". On the shaft of the wheel G is mounted a roller H, provided with two circles of teeth on its periphery, these teeth engaging holes formed along the whole length of the film-band I. A pressure-roller H' holds the film against the roller H, which insures its engagement. A spring acts upon the arm which supports the axle of roller H'. When the roller H turns, it carries along the film, which is wound upon the spool J. After leaving the roller H the film passes between two rollers K K', which hold it in the desired position. The film then descends vertically and enters the dark chamber L. At its exit from the dark chamber it passes over the roller M

is supported by rocking arms N'. From the frame N the film passes between the two rollers O and O', over the toothed roller P, over the roller Q, and is finally wound upon the spool R.

The shaft E carries a pinion S, which, through the intermediate S', drives the wheel T, fast on the shaft of the roller P. The movement is given to the spool R by a spring in the barrel U. This barrel is for this purpose provided with a wheel U', which drives the shaft of the spool R through the pinion U".

To explain the operation of the apparatus, it will be supposed that the film has been introduced into its working position, and the operation will be described as it would then take place. The shaft E being moved, the roller H turns and unrolls the film from the spool J. When the photograph has been taken, the crank-disk V acts upon the frame N through the connecting-rod X, moving it about the axis of oscillation N" of the arms N' and forcing it to approach the front of the apparatus. The film, which is caught in the frame N, is carried along, and since its lower part is held by the teeth of the roller P it cannot be drawn back, and the portion which has been printed will be obliged to pass out of the dark chamber, being replaced therein by a new and unexposed portion of the film. The shaft E continuing to turn, the frame N returns rearward, and the loop which it formed in advancing being no longer held can be taken up by the roller P. The roller H for its part will have unrolled from the spool J a length of film corresponding with that which has been wound below on the spool R.

Before commencing the operation, at the moment when the film is introduced into the apparatus a loop is formed by hand between the roller H and the rollers K K', and as the same length is wound upon the spool R as is unrolled from the spool J this loop will maintain itself during the whole time the apparatus operates. It hence results that as the roller P does not pull upon a tight film the latter is not liable to be torn apart.

At the beginning of the operation the spring in the barrel U is about half-wound. In order that the tension of this spring

on the axle of the roller P, and this wheel drives the pinion Y" through the chain Y'. On the axle of pinion Y" is another pinion Z, which meshes with the wheel Z', whereby the spring is wound. Thus during the working of the apparatus the tension of this spring is kept constant.

The shutter a is mounted in a shaft b, which carries a worm-wheel c, that is engaged with the endless screw d on the shaft E.

In order that the film may be easily moved at the time of its entrance into the dark chamber and may also be arrested during the exposure, a hinged leaf e, Figs. 3 and 4, is arranged a little above the entrance to the dark chamber, and this hinge is provided with a pin e', which is movable in a slot in the upper arm of a lever f, fulcrumed on the stud g. In the lower arm of this lever there is a pin in which works a pin on the end of the bar h, that is fastened to the strap of the eccentric i. This eccentric is fast on the shaft E. At the moment when the frame N advances to draw down the film which has been exposed the bar h also advances, and the lever f is rocked on its fulcrum and withdraws the leaf e from the plate j, against which it has clamped the film. This plate is provided with a velvet band, which prevents the film being injured by rubbing. This plate j is removable, as shown in Fig. 3, so that the velvet band can readily be replaced when it is worn or when it becomes clogged with powder.

During all the time the frame N is advancing toward the front part of the apparatus the leaf e remains withdrawn from the plate j, and nothing, therefore, opposes the free movement of the film. As soon as the frame N is at the end of its course the eccentric brings forward again the lever f and causes the leaf e to bear against the plate j, and the film is stopped.

It will thus be seen that if the film tended to continue its downward movement it would be arrested by the leaf e, and besides the pressure of the leaf against the plate j permits the roller P to keep the film stretched constantly in the dark chamber.

When the film is at rest, one of the openings in the shutter comes between the dark chamber and the objective. The film then is printed or exposed at the moment in which it is at rest. A diaphragm of variable opening is placed in the dark chamber. In small apparatus the roller H may if desired, be suppressed. The film would then be unwound by the action of the frame N.

When the apparatus is to serve as a kinoscope, the back of the dark chamber is replaced by a translucent plate, the film is unrolled, as before explained, and by placing a sufficient source of light provided with a reflector or condenser behind the apparatus the

image which may be on the film can be received on the screen. This image cannot be projected except when the film is at rest, for, as observed above, it is only at such time that one of the openings in the shutter is in front of the dark chamber and permits the luminous rays to pass through the objective. By reason of the system of supporting and shifting the film this may be of very great length and consequently of a considerable weight. The frame N, which produces the shifting of the film, does not have to act directly on the spool, since there is constantly a certain length of film unrolled in advance. This frame then is not required to produce itself the rotation of the spool. In certain cases a single toothed wheel might suffice, provided it is of sufficiently large diameter. The two spools being then placed on the same side of the apparatus, the roller-teeth may produce on one hand the unwinding and on the other the rewinding of the film. The frame N can (without departing from the invention) be replaced by an eccentric roller which will communicate to the film the same movement as the frame.

I claim as my invention or discovery—

1. In an apparatus of the kind described wherein a film having perforations at regular intervals therein is employed, two toothed rollers, the teeth thereon engaging perforations in the film, one for unrolling and the other for rewinding the film, means for rotating the rollers at a uniform continuous movement, means for forming a loop in the film in advance of the dark chamber, and a frame reciprocating at right angles to the normal line of feed and acting to periodically form a loop in the film after it leaves the dark chamber, whereby the film is passed through said chamber by an intermittent movement, substantially as described.

2. In an apparatus of the kind described, means for unrolling and means for rewinding the film at a uniform continuous movement, means for forming a loop in the film in advance of the dark chamber, and a frame reciprocating at right angles to the normal line of feed of the film and acting to periodically form a loop therein after it leaves the dark chamber, whereby the film is passed through said chamber by an intermittent movement, and a clamp or gripping device located immediately in advance of the dark chamber and actuated to hold the film during intervals of exposure, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

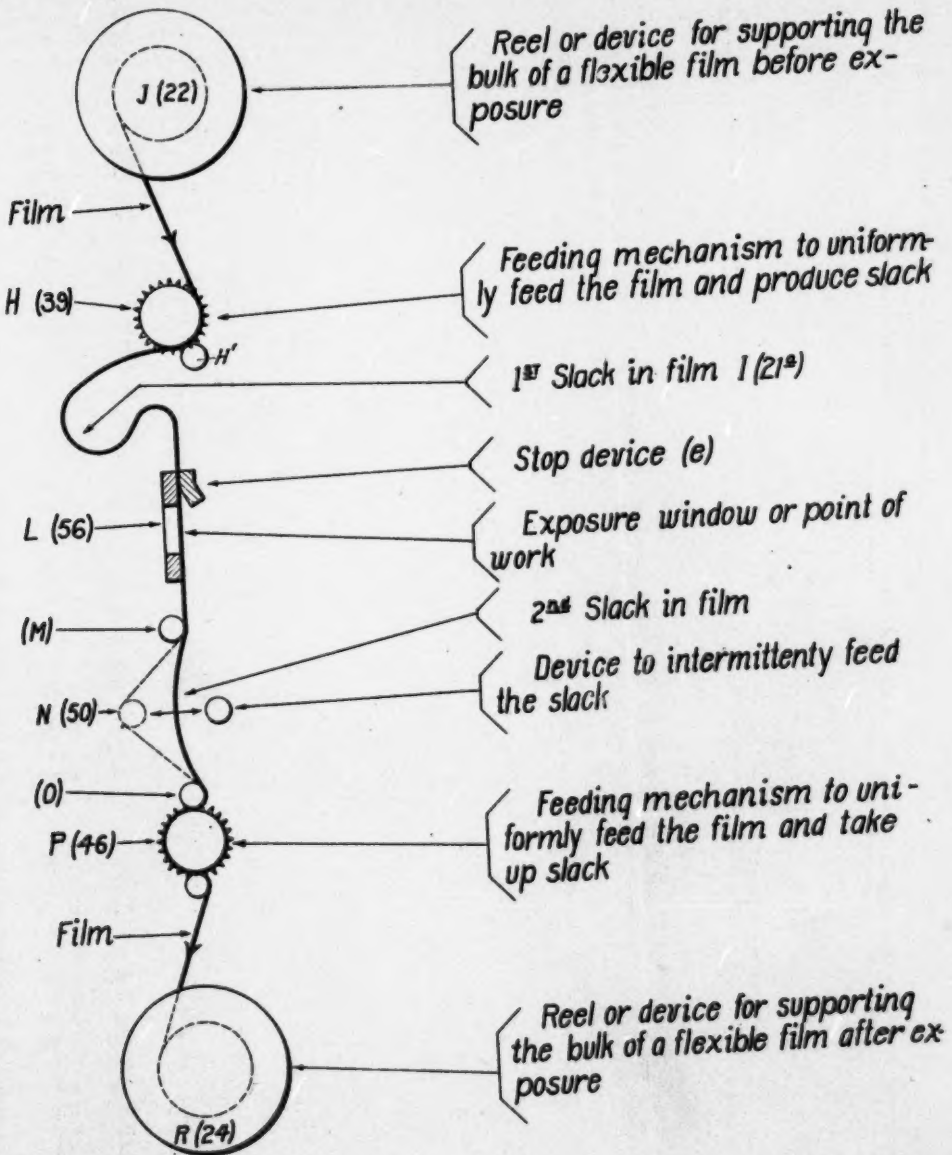
MARIE JOSEPH HENRI JOLY.

Witnesses:

CLYDE SHROPSHIRE,  
EDWARD BARBARY.

## DEFENDANTS' EXHIBIT No. 30

Diagram of Joly French Pat. 249875 and U. S. Pat. 569875



**No. 673,992.**

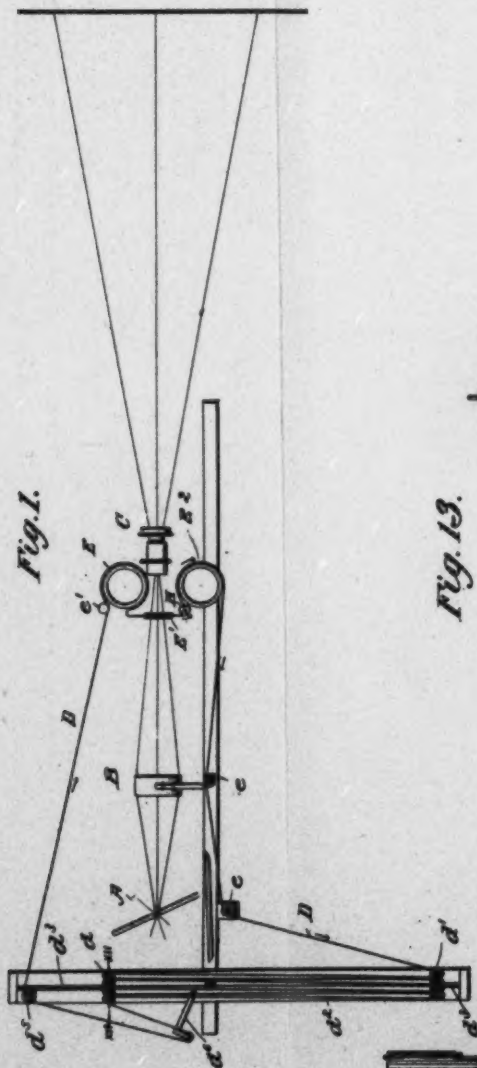
Patented May 14, 1901.

**T. ARMAT.**  
**VITASCOPE.**

(Application filed Feb. 10, 1896.)

(No Model.)

**3 Sheets—Sheet 1.**



*Fig. 1.*

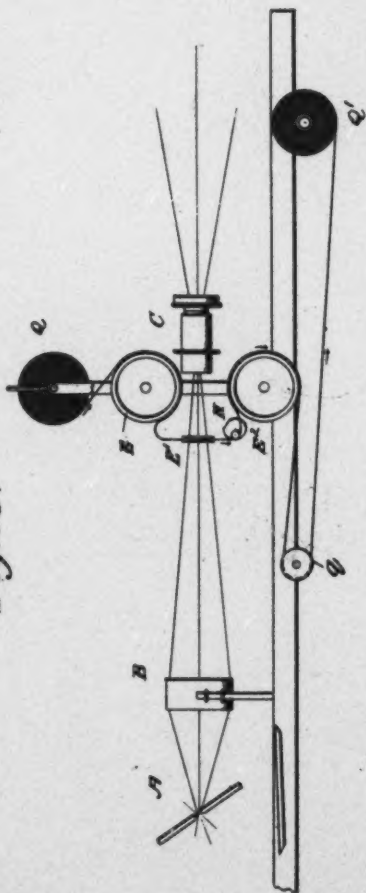
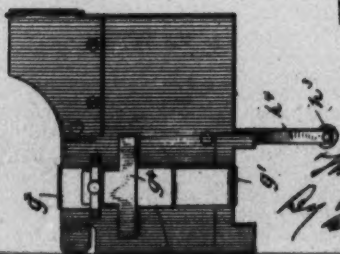


Fig. 13.



Fig. 12.



Inventor

Witnesses  
Edw. D. Duwall, Jr.  
Charles E. Panton

Fig. 6.

Thomas Arad  
By Rafterworth  
adowell  
his Attorney



T. ARMAT.  
VITASCOPE.

(Application filed Feb. 19, 1896.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2.

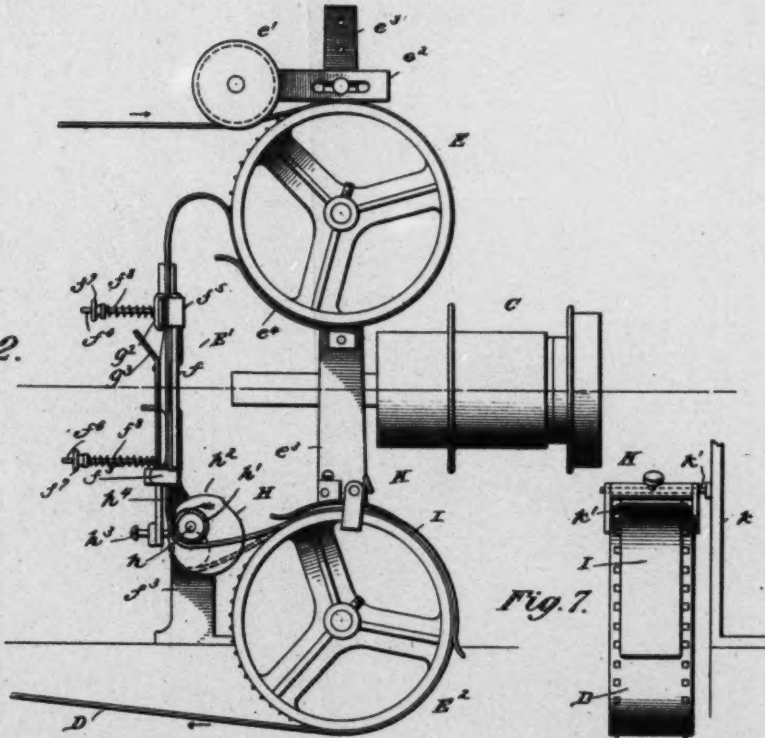


Fig. 7.

Fig. 3.

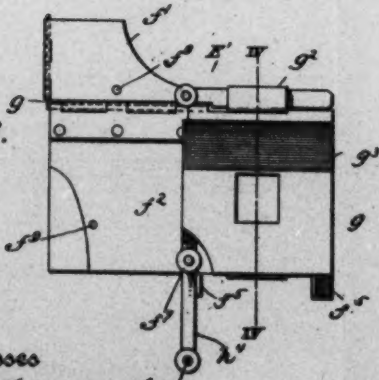
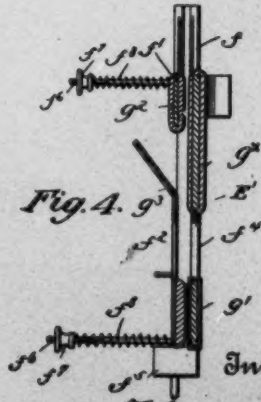
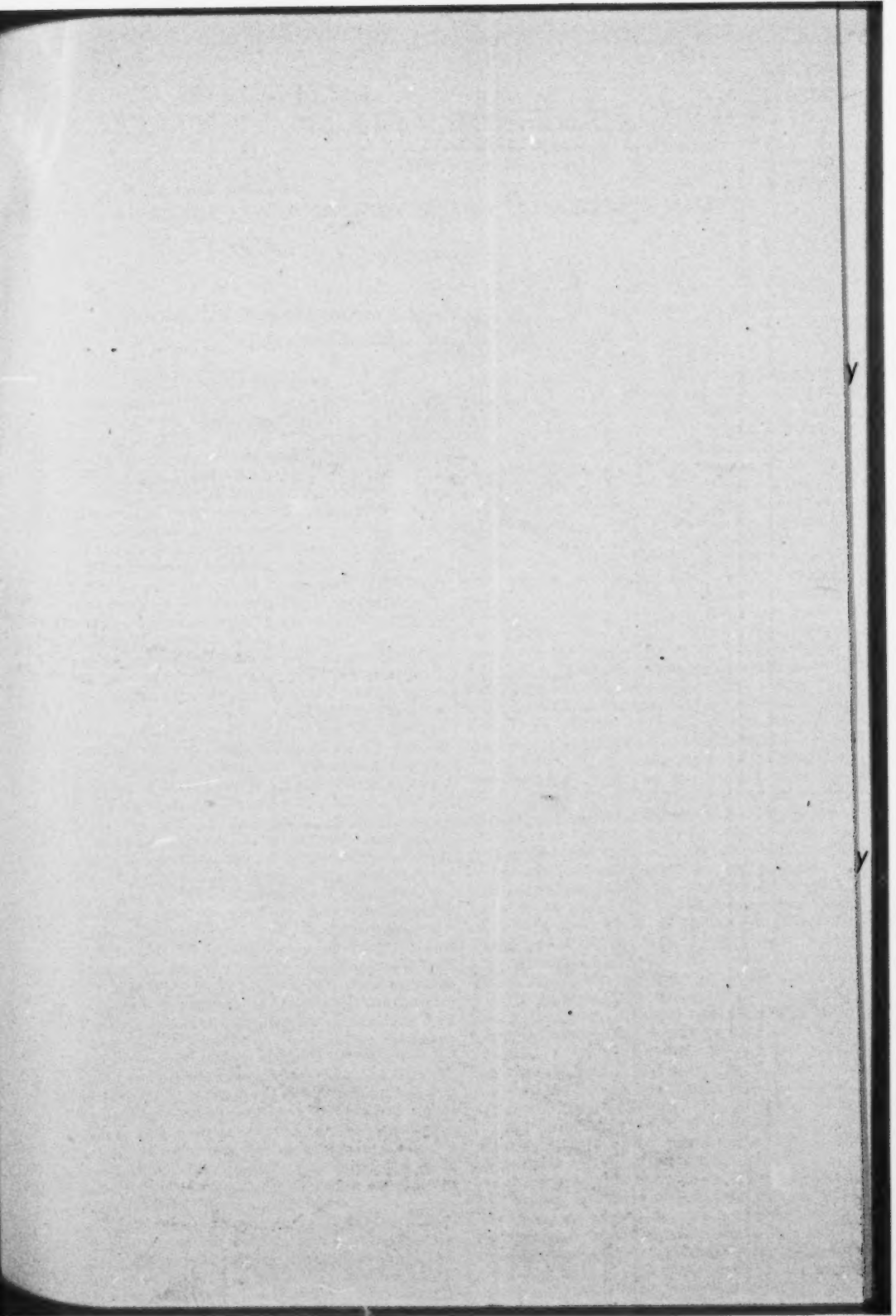


Fig. 4.



Witnesses  
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By *Butterfield & Smith*  
His Attorneys



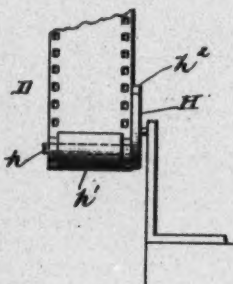
**T. ARMAT.**  
**VITASCOPE.**

(Application filed Feb. 19, 1906.)

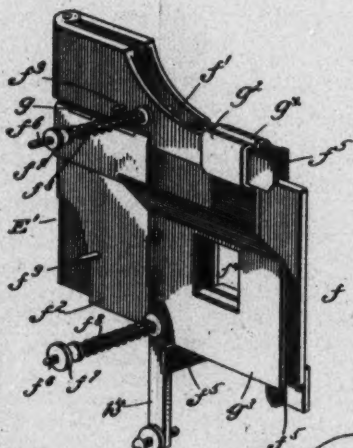
(No Model.)

**3 Sheets—Sheet 3.**

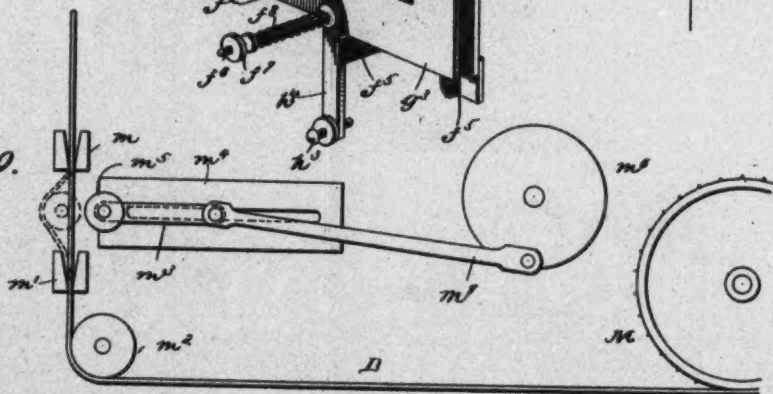
*Fig. 8.*



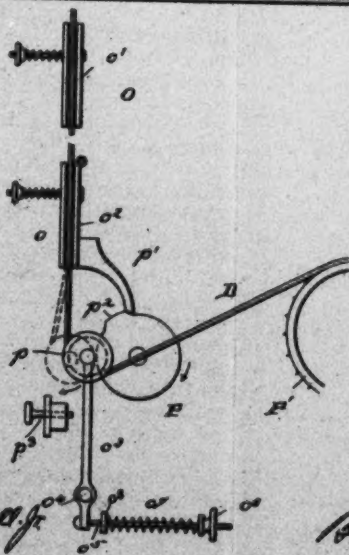
*Fig. 5.*



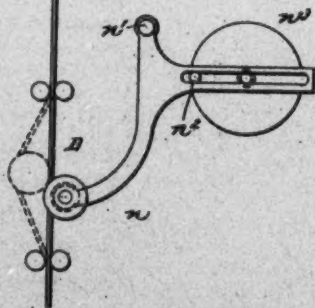
*Fig. 9.*



*Fig. 11.*



*Fig. 10.*



*Witnesses*

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# UNITED STATES PATENT OFFICE.

THOMAS ARMAT, OF WASHINGTON, DISTRICT OF COLUMBIA.

## VITASCOPE.

SPECIFICATION forming part of Letters Patent No. 673,992, dated May 14, 1901.

Application filed February 19, 1898. Serial No. 579,901. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS ARMAT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Vitascope; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it apper-  
10 tains to make and use the same.

This invention relates to apparatus for exhibiting pictures, but more particularly to that class of picture-exhibiting apparatus in which the impression is given to the eye of  
15 objects in motion.

The primary object of the invention is to provide improved and efficient means whereby a series of photographic or other pictures showing successively the different positions  
20 or attitudes assumed by a person or object in motion may be displayed in such manner as to reproduce to the eye the appearance of the moving object through all the phases of such movement with a life-like and unblurred ef-  
25 fect.

Another object is to provide means by which a continuous or endless strip or film forming the picture-carrying surface may be operated so as to successively place the ob-  
30 jects thereon in position for reproduction without liability to injury from unnecessary strain and wear thereon and without the knocking and jarring of the mechanism which is incident to the means heretofore proposed.

35 Other objects are to provide means for preventing the film from flexing or puckering at the point of exposure (in order to assure a proper reproduction of the objects thereon) and for intermittently releasing the film, so  
40 as to permit it to move a sufficient distance to expose a picture at each successive movement, and also to provide continuously-operated mechanism for moving the film, and means for intermittently moving it so as to  
45 successively place the pictures in the field of illumination for reproduction.

These several objects may be accomplished by the use of the mechanism hereinafter described and without using a shutter or equivalent device, such as is commonly used in ap-  
50 paratuses of a similar character, whereby the light for illuminating the picture to be pro-

jected or reproduced is utilized continuously and to the best advantage and the casting of shadows or cloud effects produced by the passage of the shutter across the light is avoided.

The invention will first be hereinafter more particularly described and then pointed out in the claims at the end of the description.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a diagrammatic view, in side elevation, of one form of picture-exhibiting apparatus embodying my invention. Fig. 2 is an enlarged side elevation of a preferred form of mechanism for operating the picture-carrying surface or film, so as to place the objects thereon successively in position for reproduction. Fig. 3 is a front elevation of the tension and guiding device for the film. Fig. 4 is an enlarged vertical sectional view taken on the line IV IV of Fig. 3. Fig. 5 is a perspective view of the tension and guiding device. Fig. 6 is an elevation of the tension and guiding device looking from the rear, illustrating an adjustable plate which may be employed for enlarging or decreasing the size of the opening therein according to the size of the object to be reproduced. Fig. 7 is a detail view of one of the feed-drums, having a pressure and a guiding device for the film while passing around said drum. Fig. 8 is a detail view of a preferred form of device for intermittently operating the film. Figs. 9 and 10 are side elevations of modified forms of mechanism for intermittently operating the film. Fig. 11 is a side view of another form of mechanism for intermittently operating the film, showing how pressure may be applied to and released therefrom. Fig. 12 is a sectional plan on the line XII XII of Fig. 1, illustrating how the banks or series of rollers may be adjusted upon their support; and Fig. 13 is a diagrammatic view of a modified form of apparatus in which a continuous instead of an endless strip or film is employed.

In devices or apparatuses such as have heretofore been devised for exhibiting life-like pictures or producing the appearance of objects in motion it has been considered most feasible to keep the series of similar pictures (whether on a disk, tape, or other surface) constantly moving at a regulated speed corresponding with the speed at which the pic-

5 tures were taken and by means of a shutter  
 or light-obstructing surface to alternately  
 cover and expose the pictures successively  
 in a manner quite similar to the method of  
 10 exposing the sensitive film or substance in  
 taking the photographs, so as to bring the  
 opening through the shutter centrally over a  
 picture at intervals practically equal to the  
 15 intervals between exposure in taking the pic-  
 tures, so that each picture may be seen only  
 when it is in such a position that it will be  
 exactly superposed upon the image not yet  
 (owing to the persistence of vision) faded  
 20 from the eye. The openings in such shutters,  
 which are ordinarily in the form of revolving  
 disks having openings near their circumfer-  
 ences, usually cover but a fractional part of  
 the circumference of the disk, so that a view  
 25 of the picture is afforded through an inter-  
 val of time much less than the period of in-  
 terruption, and as the illuminated pictures  
 and the cloud effect or darkness of interrup-  
 tion caused by the passage of the shutter  
 across the light are blended or mixed together  
 30 in the eye of the observer the darkness con-  
 tinues to impress upon the retina so much  
 longer than the light that the value of the  
 illumination is very greatly diminished and  
 the picture appears to be poorly lighted or  
 35 blurred. In the case of my invention the  
 conditions are quite different, and the results  
 produced are therefore more satisfactory than  
 and superior to anything of the kind hereto-  
 fore obtained, for the reason that the picture  
 40 is held a much longer time than is required  
 to remove it and substitute another in its  
 stead, thus prolonging the period of view or  
 illumination very greatly as compared with  
 the period of interruption or change, and there  
 45 is no obstruction of the light by the interpo-  
 sition of a shutter or opaque substance across  
 its path, so that the impression of the picture  
 on the eye is so much longer and more perma-  
 nent than the distortion or shadow effect in-  
 50 cident to its movement and the interval of  
 change or interruption is so infinitesimal that  
 the image of the picture is readily retained  
 until displacement and substitution takes  
 effect, and owing to the inability of the eye  
 55 to receive an impression from every phase of  
 motion the interruption or change is wholly  
 imperceptible, and the result is a most vivid  
 appearance of an object in motion, otherwise  
 unchanging, clearly exhibiting all the phases  
 of such motion with life-like effect.

My invention depends for its successful op-  
 eration both upon the inability of the eye to  
 receive an impression of movement exceeding  
 a certain rapidity and upon that faculty of  
 60 the eye which enables it to retain an impres-  
 sion after the source of light has vanished—  
 the persistence of vision—which enables me  
 to change the pictures, one for another, im-  
 perceptibly. This I accomplish by moving  
 65 the film or other picture-carrying surface in-  
 termittently in such manner that the interval  
 of exposure and illumination of the picture

shall exceed the interval of time required to  
 effect a change sufficiently to enable the eye  
 to form a perfect impression or image at each  
 exposure and to retain it through the interval  
 of motion or change and until another picture  
 has been superimposed, as it were, upon the  
 one displaced, thus rendering the act or effect  
 of displacement and substitution of pictures  
 75 wholly imperceptible and giving the impres-  
 sion to the eye of objects in motion. Various  
 contrivances and forms of mechanisms may  
 be employed for effecting the intermittent  
 movement, the requirement being that the  
 80 film or other surface shall be moved quickly  
 between successive pauses far enough to ex-  
 pose the next succeeding picture in the series.

In the arrangement illustrated in Fig. 1 is  
 shown an illuminator A and a condensing-  
 85 lens B, the latter arranged adjacent to the  
 illuminator and adapted to concentrate the  
 rays of light upon a picture located in the  
 focus of an objective lens C, all of which parts  
 may be of the usual or of any preferred con-  
 90 struction and arranged in any suitable man-  
 ner. The strip or film D may be composed of  
 any suitable transparent or translucent flexi-  
 ble substance adapted to provide a surface  
 for carrying pictures produced or impressed  
 95 thereon by photographic or other means, the  
 several pictures in the series representing  
 successively different positions of a moving  
 object, so that the rapid exhibition of the en-  
 100 tire series of pictures in the order in which  
 they were made or taken may result in the re-  
 production of the appearance of the moving  
 object in every phase of its motion. An up-  
 per and a lower bank or series of rollers  $d$  and  $d'$ ,  
 105 respectively, may be arranged upon a suit-  
 able support  $d^2$ , and the film may be made to  
 pass around or partially around each roller  
 in the series, passing alternately from an up-  
 per to a lower roller, or vice versa, so as to  
 110 take up the surplus material and provide com-  
 pact means by which a very long continuous  
 or endless strip may be employed. These  
 banks or series of rollers are preferably ad-  
 justably supported upon the standard  $d^2$  in  
 order to permit films of various lengths to be  
 115 used, and for this purpose the frames of the  
 rollers  $d$  and  $d'$  may be provided with projecting  
 screw-threaded bolts which may pass through  
 slots  $d^3$  in said support or standard and be se-  
 120 cured thereto by a thumb-nut  $d^4$  on the pro-  
 jecting threaded end of the bolt or otherwise,  
 as shown in Fig. 12. From the last roller of  
 the upper series or bank the film may pass  
 around or over a roller or stud  $d^5$ , preferably  
 125 first passing under a take-up roller arranged  
 between said roller  $d^5$  and the upper series or  
 bank of rollers  $d$ , said take-up roller being  
 arranged on an arm  $d^6$ , which has its inner  
 end pivoted to the support, so that its outer  
 end may move freely in order to provide a  
 130 yielding surface over which the film may  
 pass and to provide means for taking up the  
 slack in said film, though as an additional  
 means for taking up the slack the arm  $d^6$  may

be weighted or otherwise caused to exert a pressure upon the surface of the film. The film after leaving the roller  $d^2$  is caused to pass around a drum or spool E, then through a tension and guiding device E', and then around a drum or spool E', as hereinafter more fully explained, and then over one or more rollers  $e$  to the lower series or bank of rollers  $d'$  in the direction shown by the arrows.

The drums or spools E and E' are preferably provided with peripheral teeth or projections adapted to engage perforations in the film, so as to properly guide and hold it against slipping. These spools may have their shafts journaled in any suitable support or standard and may be geared together by a sprocket-chain or otherwise, so as to rotate in unison, being so timed that each spool will rotate the same number of times in the same space of time. The film is preferably gently pressed in its passage over the drum E by a roller  $e'$  resting thereon, said roller being journaled in a bracket  $e^2$ , which is adjustably mounted upon a standard  $e^4$ , rising above the drum E. Below the drum E may also be placed a curved spring or yielding strip of metal  $e^5$ , which may be secured to the standard  $e^4$ , so as to bear underneath the film and press it gently against the periphery of the drum. Owing to its rigidity or stiffness the film D will be caused to move or be carried upwardly or outwardly a short distance away from the drum E and its point of contact with the spring  $e^5$ , so as to provide constant slack in the film at this point, and then with a return-bend it may pass in a substantially straight line through the tension and guiding device E' and thence to the drum E<sup>2</sup>.

As a means for tensioning and frictionally holding the film so as to permit the series of pictures thereon to be brought successively into the illuminated field and retained for exposure therein for a predetermined time I preferably employ a tension device E', having a stationary member  $f$  and the pivoted or hinged members  $f'$  and  $f^2$ , between which the film passes, as shown in Figs. 2 to 6, inclusive. The stationary member  $f$  may be supported in any suitable manner, as upon the standard  $f^3$ , and is provided with an opening  $f^4$ , through which the successive pictures may be exposed, and with the upper and lower guides  $f^5$ , against which the edges of the film may abut, so as to be properly aligned while passing between the yielding and stationary members. Pins or stems  $f^6$  may project from the stationary member  $f$  and pass through apertures in the yielding or movable members  $f'$  and  $f^2$ , each stem being provided with a nut  $f^7$  at its outer end, between which and its corresponding yielding member is placed a coiled or other suitable spring  $f^8$ , so that said movable members may be held with a yielding force in proper relation to the stationary member to clamp the film between the same, said yielding or movable

members being each also preferably provided with an aperture through which pins  $f^9$ , projecting from the stationary member, may pass in order to serve as a guide therefor when moved on their pivots. The member  $f^2$  may be pivoted or hinged, as at  $g$ , below the member  $f'$  and is preferably angular in form and forced with greater pressure against the film than the member  $f'$  in order to prevent flexing or puckering at the point of exposure and to yieldingly hold the film and to exert a pressure sufficient to prevent the displacement thereof while the objects thereon are in position for reproduction. By employing two tension devices or a tension device having two members adapted to exert different pressures for yieldingly holding the film or picture-carrying surface one of said members will act promptly in case the other should not, and thus insure the stoppage of the film the instant it has been advanced the desired distance and the holding of the same stationary during the desired interval of exposure. In the form shown the pivot of the member  $f'$  is arranged above and at right angles to the pivot of the member  $f^2$ . To cushion and provide a smooth brushing-surface for the film between the members or any two or more of the same of the tension device, a strip of leather or other suitable material  $g'$  and a strip of softer material  $g^x$ , as felt or plush, may be cemented or otherwise secured on the stationary member  $f$ , between the guides  $f^5$  and on opposite sides of the opening  $f^4$ , while on either or both of the movable or yielding members (preferably the member  $f'$ ) may be secured felt, plush, or other suitable material, as at  $g^2$ , adapted to contact with the film and exert a yielding pressure thereon, so as to keep the film free from dust and to prevent it from slipping. Upon the movable member  $f^2$  and secured thereto or formed integrally therewith is a plate or shield  $g^3$ , having an aperture therethrough corresponding with the aperture  $f^4$  of the stationary member, said shield being separated from the stationary member  $f$  by a suitable space in order to protect the film and tension and guiding device from the heat of the illuminator and to provide a space for the circulation of air, so as to keep the film cool, this result being facilitated by the fanning action of said plate or shield under the action of the cam operating intermittently to release the tension on the film.

As the pictures on different films do not always occupy the same position with reference to the perforations in the film, one or more adjustable plates, as  $g^4$ , Fig. 6, may be provided for varying the size of the opening  $f^4$  of the stationary member according to the position of the pictures or objects to be exposed relative to such perforations.

For the purpose of intermittently moving or feeding the film or picture-carrying surface in such manner as to cause the series of pictures thereon to be brought into and permit-

ted to remain in the illuminated field for an interval of time exceeding the time required to effect the displacement of any one picture and the substitution of another therefor and to automatically release the pressure exerted upon the film by the yielding member of the tension device I may employ a rotating disk, cam, or other rotating element II, Figs. 1, 2, and 8, having thereon, preferably, an eccentric stud or pin  $h$ , which may have a friction-roller  $h'$  journaled thereon and adapted to impinge against the film and advance the same a predetermined distance at each revolution of said disk or cam. The disk may be journaled in a suitable standard or frame-piece, as  $f^3$ , in such position that the stud or roller thereon may press downwardly upon the film at a point between the tension device  $E'$  and drum  $E^2$ , so as to cause the film to be moved or drawn downward the required distance at each revolution of said disk or cam. A cam-surface  $h^2$  on the disk or cam H is adapted to engage the end of a screw  $h^3$ , arranged in a pendent arm  $h^4$ , which is secured to or formed integrally with the member  $f^2$  of the tension device, in order to release the pressure on the film by said member prior to and while the film is being drawn downward by the roller  $h'$ . This roller is preferably provided with a suitable covering and may have reduced ends, as shown in Fig. 8, so that it may engage the surface of the film between the perforations in order to prevent enlarging or otherwise distorting the perforations. This arrangement permits the film to be constantly moved by the drums  $E$  and  $E^2$ , while a portion thereof is intermittently fed forward and positively held during the interval of exposure, so as to present the successive pictures in the field of illumination, while maintaining sufficient tension thereon to prevent the film from slipping or moving more than the required distance.

In connection with one or both of the feed-drums  $E$  and  $E^2$ , I may employ a pressure device, such as shown at I in Figs. 2 and 7. This pressure device may consist of a spring having a portion thereof adapted to press the film yieldingly against the smooth face or periphery of the drum, between the rows of teeth thereon, so as to hold the film in place. A guide  $K$  may also be provided for either or both of the feed-drums, said guide being preferably supported upon a suitable standard  $k$  and provided with depending arms or fingers  $k'$ , adapted to embrace the edges of the film, so as to align the same and prevent the projections on the drum from enlarging or otherwise injuring the perforations in the film.

The feed-drums  $E$  and  $E^2$  should be geared together, so as to run at a regulated speed and should revolve in unison with each other, each making a complete revolution in the same instant of time, and the disk or cam H should be so actuated and timed with respect to the rate of movement of the drums that

the film may be advanced the same distance for every revolution. Though no mechanism is shown for this purpose it is obvious that gearing, belts, chains, or any other suitable means may be employed and may be actuated by an electric or other suitable motor.

The operation of the invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings, the parts being in the position shown in Figs. 1 and 2. If the feed-drums are rotated at a proper speed, the film D will be moved in the direction indicated by the arrows; but the pressure exerted by the tension device  $E'$  will hold the film stationary with the exposed picture in the field of illumination for a predetermined time and until the disk H has rotated far enough to cause its roller  $h'$  to contact with the film for advancing the latter, so as to displace the exposed picture and bring another picture into the field of illumination, there being sufficient slack in the film at the bend thereof above said tension device to permit a rapid movement of a given length sufficient to displace any one of the pictures in the series and permit another to be brought into position for exposure or reproduction. When the object has been held in the field of illumination the proper interval of time, the cam-surface  $h^2$  of the cam or disk H will engage the set-screw  $h^3$  and throw the member  $f^2$  of the tension device outwardly on its pivot, so as to relieve the pressure exerted thereby upon the film, the member  $f^2$  being adapted to exert a constant but yielding pressure on the film to prevent the latter from slipping or being fed farther than is required to present the successive pictures in proper position. When the pressure exerted on the film by the member  $f^2$  is relieved, the roller  $h'$  on the disk H will simultaneously engage the film and move it downward a sufficient distance to displace one object or picture and place the next succeeding object in proper position for exposure. When the tension device and film are released by the cam  $h^2$  and roller  $h'$ , respectively, on the disk H, the roller will revolve the remaining portion of a complete revolution before again moving the film, while the released tension device instantly regains its hold upon and holds that part of the film which is in the field of illumination stationary until the roller again contacts with the film. During this interval of time the slack in the film between the tension device and the drum  $E^2$  will be gradually taken up by the last-mentioned drum, but not at such a speed as to exert a tension sufficient to move the film during the interval of exposure of the picture, and in the same instant of time, while the picture is being exhibited, the slack in the film between the tension device and the drum  $E$ , which has been taken up by advancing the film, will be compensated by an additional amount of slack paid out by the drum  $E$ , thus providing sufficient slack ahead

of the tension device to permit the next succeeding picture to be brought quickly into the field of illumination and allowing sufficient slack in that portion of the film which has passed the tension device to be taken up by the succeeding drum during the inaction of the film-advancing device. This operation will be repeated in regular sequence, the film being caused to move over the surface of the drums E and E' continuously, while that portion thereof which lies between the two drums is intermittently moved forward just far enough to expose a picture at each move, the film-advancing mechanism being also continuously driven, but adapted to only intermittently advance the film, the interval of illumination of the picture being made to exceed the interval of movement or change preferably very greatly or in the ratio of about one to ten. In this manner the pictures on the picture-carrying surface or film may be successively displaced and substituted one for another with great rapidity, so that in exhibiting a series of similar pictures representing the same moving object in different phases of its motion the impression may be given to the eye of persons or objects in motion and with a vivid or life-like appearance. I thus provide means for operating the film so that it may be moved the proper distance for exposing successive pictures without liability to injury thereto, and whereby the knocking and jolting of the machinery incident to the necessarily rapid movement of the parts may be effectually prevented.

It is obvious that various devices may be employed for intermittently moving the film so as to successively place the pictures in the field of illumination. In Fig. 9 the film passes between two suitable tension devices  $m$  and  $m'$ , then around a roller  $m^2$ , and thence to the drum M, though other means for guiding said film may be used, if desired. Between the guides  $m$  and  $m'$  may be arranged an arm or cross-head  $m^3$ , adapted to slide in a suitable support  $m^4$ , one end of said cross-head being provided with a roller or other engaging portion  $m^5$ , and the other end thereof connected to a suitable driving mechanism, as a crank and pitman  $m^6$  and  $m^7$ , respectively, so that when the cross-head is forced forward the roller will engage the film between the guides and force it outward, thereby causing the slack portion of the film above the guide or tension device  $m$  to move downward the desired distance to displace one picture and place another in its stead, the slack below the tension device  $m'$  in the film being taken up by the drum M or in any other preferred manner. The roller for actuating the film, instead of having a sliding reciprocating movement, as in Fig. 9, may be arranged on the end of an oscillating arm or lever  $n$ , Fig. 10, pivoted, as at  $n^1$ , to a suitable support, so as to swing in the arc of a circle. In this case the lever  $n$  may have a slotted portion in which a pin or stud  $n^2$ ,

projecting from a rotary disk or crank  $n^3$ , may work, so as to tilt said lever on its pivot and force the film outward, as shown in dotted lines.

Fig. 11 illustrates a modified form of tension and guiding device and means for intermittently operating the film. The stationary member  $o$  of the tension device O in this instance may be in two parts, as shown, (or in one piece, if preferred,) and has an upper yielding member  $o^1$ , which exerts a constant yielding pressure upon the film, and a lower pivoted or hinged and yielding member  $o^2$ , adapted to exert a greater pressure upon the film than the member  $o^1$  in substantially the same manner as in the tension device E'. A lever  $o^3$  may be pivoted, as at  $o^4$ , to a suitable support and has on one end thereof a rod or stem  $o^5$ , provided with an adjusting-nut  $o^6$ , and a spring  $o^7$ , interposed between said nut and a suitable stop or fixture  $o^8$ , through which the rod  $o^5$  slides, so that the rod will be normally forced inward, and on the opposite end of said lever may be journaled a roller  $p$ , adapted to engage the film and tending to normally force the same outward, as shown in dotted lines. The yielding member  $o^2$  of the tension device is provided with a depending arm or finger  $p^1$ , adapted to be engaged by the cam-surface  $p^2$  of the disk or cam P at a predetermined time, so that when said member is thrown outward sufficiently to relieve the pressure on the film the spring  $o^7$  will force the end of the lever  $o^3$ , with the roller  $p$  thereon, in the direction indicated by the arrow, until the lever reaches the adjustable stop  $p^3$ , at which time the picture in the field of illumination will be displaced and another substituted therefor. At P' is a drum for taking up the slack in the film and holding the lever  $o^3$  against the tension of the spring  $o^7$  until the pressure on the film by the member  $o^2$  of the tension device is relieved by the cam P.

In Fig. 13 the film is shown as a continuous strip or band instead of an endless strip, as shown in Fig. 1. In this case the film may be unwound from a reel or spool Q' and after passing around the feed-drums E and E', as heretofore explained, may be caused to pass around a roller  $q$  and then to the reel or spool Q, the latter being operated in any suitable manner, as by frictional engagement devices, to take up the slack in the film as it is unwound from the drum E without causing unnecessary tension upon said film. The reel Q' may, however, be placed in such position that the film may be wound directly thereon from the drum E'.

It will be understood, of course, that the film may be fed to the tension device and taken up after leaving the same by other means than by the use of the feed-drums, that certain parts of the apparatus may be dispensed with or others substituted therefor, and that some parts of the operating mechanism and other parts of the apparatus may

be employed in other connections or for other purposes than exhibiting pictures without departing from the spirit of my invention.

5 From the foregoing description it will be seen that the pictures are brought successively into an illuminated field and that each picture is illuminated without interruption from the instant it enters such field until displaced by the next picture in the series and that the several pictures in the series are successively substituted one for another with such rapidity that although the exposed portion of the film or picture-carrying surface is continuously illuminated the eye receives an impression of the picture which so greatly predominates any possible impression that might be made by the practically instantaneous motion of said film or surface in substituting picture for picture that the predominating impression which the eye receives, owing to its inability to receive two impressions at one and the same time and to the persistence of vision, has the effect of rendering the movement of the film utterly imperceptible, while the successive impressions of different pictures are each retained until another picture in the series is superimposed, as it were, upon the previous impression or picture, thus rendering it possible to produce most vivid and life-like effects without any interruption whatever in the illumination, whether the film is moving or stationary and without interposing a shutter, and thereby causing a shadow or shade effect which reduces the vividness of the impression; but I do not desire to be confined to the use of the invention without a shutter, inasmuch as such a device might be used under some circumstances—as, for instance, when constructed so as to interrupt the illumination only at that instant of time when the film is moving and without rendering the interruption perceptible to the eye; but for all practical purposes a shutter of any kind is useless and objectionable and is preferably dispensed with.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

50 1. In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the period during which each picture is stationary and visible shall exceed the period occupied in substituting one picture for another, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be moved with great rapidity without unnecessary strain and wear upon the film, substantially as described.

2. In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film, substantially as described.

3. In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with an illuminator and a projecting lens, of a picture-carrying strip or film having a portion thereof arranged in the focus of the objective of the projecting lens, a tension device adapted to keep the exposed portion of the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion; mechanism for taking up the film as it is intermittently moved, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby that portion of the film between the feeding and take-up mechanisms may be intermittently moved with great rapidity without unnecessary strain and wear upon the film, substantially as described.

4. The combination, in an apparatus for exhibiting pictures so as to give the impression to the eye of objects in motion, of a picture-carrying film or strip, a pair of feed-drums adapted to be continuously rotated so as to give a continuous movement to the film, a tension device interposed between the feed-drums adapted to hold and keep the film taut so as to provide slack on one side thereof, together with means for intermittently moving the film between the drums at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, substantially as described.

5. In a picture-exhibiting apparatus, the combination with a picture-carrying film and means for giving movement to the same, of a tension device provided with a yielding member adapted to hold and prevent movement of the film for a predetermined interval of time, together with mechanism for intermittently moving the film and simultaneously engaging a portion of the yielding member so as to release the pressure exerted thereby upon the film, whereby the pictures may be successively placed in position for ex-

posure with great rapidity without unnecessary strain and wear upon the film, substantially as described.

6. In a picture-exhibiting apparatus, the combination with a picture-carrying surface or film and means for intermittently moving the same so as to successively expose the pictures thereon, a tension device for yieldingly holding the film, having two parts or members adapted to exert different pressures, so as to insure prompt action of one or the other of said parts the instant the film has moved the desired distance, substantially as described.

7. In a picture-exhibiting apparatus, the combination with an illuminator and a projecting lens, of a picture-carrying strip or film having a portion thereof arranged in the focus of the objective of the projecting lens, a tension device having two members adapted to exert different pressures so as to keep said portion of the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving said portion so as to impart a step-by-step movement thereto and successively place the pictures in position for exposure, mechanism for taking up the film as it is intermittently moved, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby that portion of the film between the feeding and take-up mechanisms may be intermittently moved with great rapidity without unnecessary strain and wear upon the film, substantially as described.

8. In a picture-exhibiting apparatus, the combination with a picture-carrying film, of a tension device therefor having two members adapted to exert different pressures so as to keep the film taut and prevent flexing or puckering at the point of exposure, mechanism for taking up the film after leaving the tension device, means located intermediate said tension device and the take-up mechanism for intermittently moving the film, together with means for feeding the film so as to provide slack between the same and said tension device, whereby the pictures may be successively placed in position for exposure with great rapidity without unnecessary strain and wear upon the film, substantially as described.

9. The combination with a film or strip and means for imparting movement thereto, of a tension device provided with a yielding member adapted to hold and keep the film taut and prevent flexing or puckering at the point of exposure, a rotatable element adapted to contact with a portion of the yielding member so as to relieve the pressure exerted thereby upon the film, together with means for intermittently moving the film through the tension device, substantially as described.

10. The combination with a film or strip, of a pair of feed-drums adapted to be continuously rotated so as to give a continuous movement to the film, a tension device interposed

between the feed-drums and provided with a yielding member adapted to hold and keep the film taut, so as to provide slack on one side thereof, a rotary disk or cam adapted to contact with a portion of the yielding member so as to release the pressure thereof on said film, and having thereon a projecting portion adapted to engage the film and intermittently move the same when the pressure of said yielding member is released, substantially as described.

11. In combination with the film and means for imparting movement thereto, the tension device comprising three members between which the film is adapted to pass, one member being stationary and the others adapted to press the film against said stationary member with different pressures so that when the pressure of one of the yielding members is released the other may exert a pressure sufficient to prevent slipping of the film without preventing its proper movement, whereby the film may be successively moved a uniform distance, substantially as described.

12. The combination with a film or strip, of a tension device comprising a stationary member, two spring-pressed yielding members adapted to press the film against said stationary member with different pressures, guides for aligning the film, and means whereby one of the yielding members may be actuated so as to release the pressure exerted thereby upon the film, substantially as described.

13. The combination with a film or strip, of a tension device comprising a stationary member, two yielding members hinged thereto adapted to press the film against said stationary member with different pressures, guides for aligning the film, means whereby one of the yielding members may be actuated so as to release the pressure thereof upon the film, and a plate or shield carried by one of the yielding members and separated therefrom sufficiently to provide space for the circulation of air, whereby the film may be protected from the heat of the illuminator and the parts kept cool by the fanning action of said plate, substantially as described.

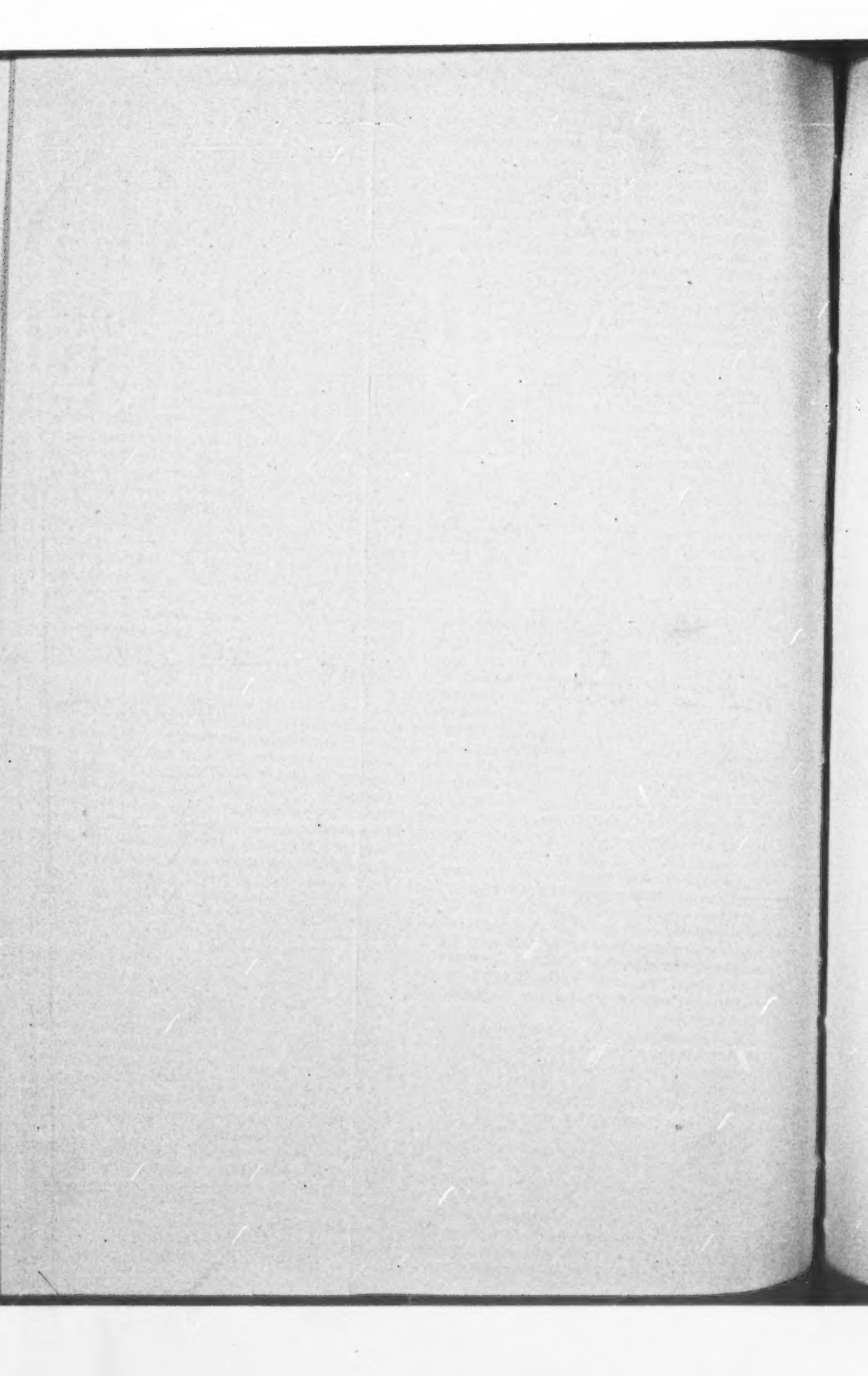
14. The combination with a film or strip and means for imparting movement thereto, of a support, banks or series of rollers separated from each other and adjustably held upon said support so that the film may pass alternately from a roller of one series to the next succeeding roller of the other series, together with an arm pivotally held to the support and provided with a roller adapted to engage the film and exert a tension thereon, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS ARMAT.

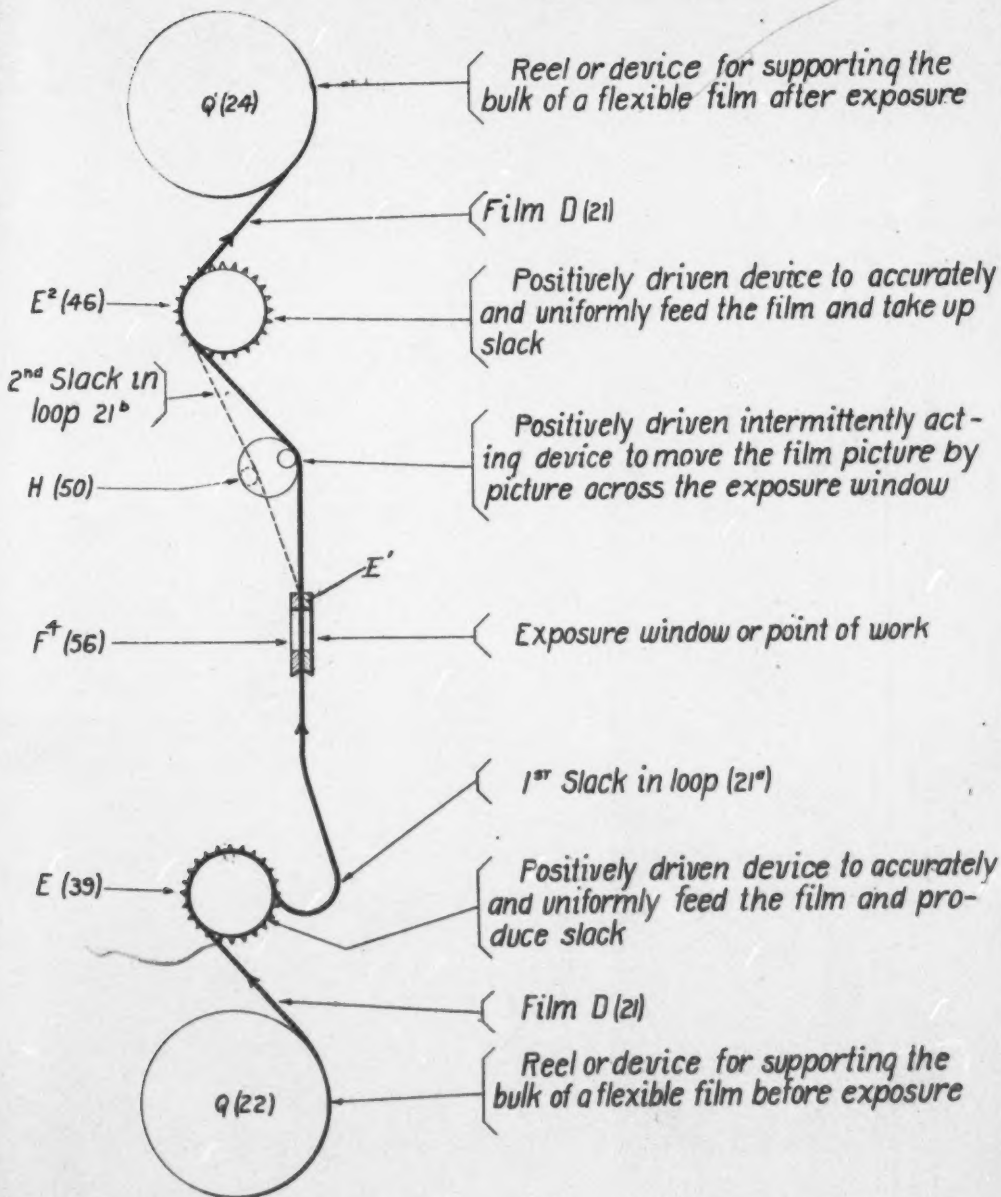
Witnesses:

J. A. E. CRISWELL,  
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DEFENDANTS' EXAIBIT No. 32  
Diagram of Armat Patent No. 673992

1271



No. 666,495.

Patented Jan. 22, 1901.

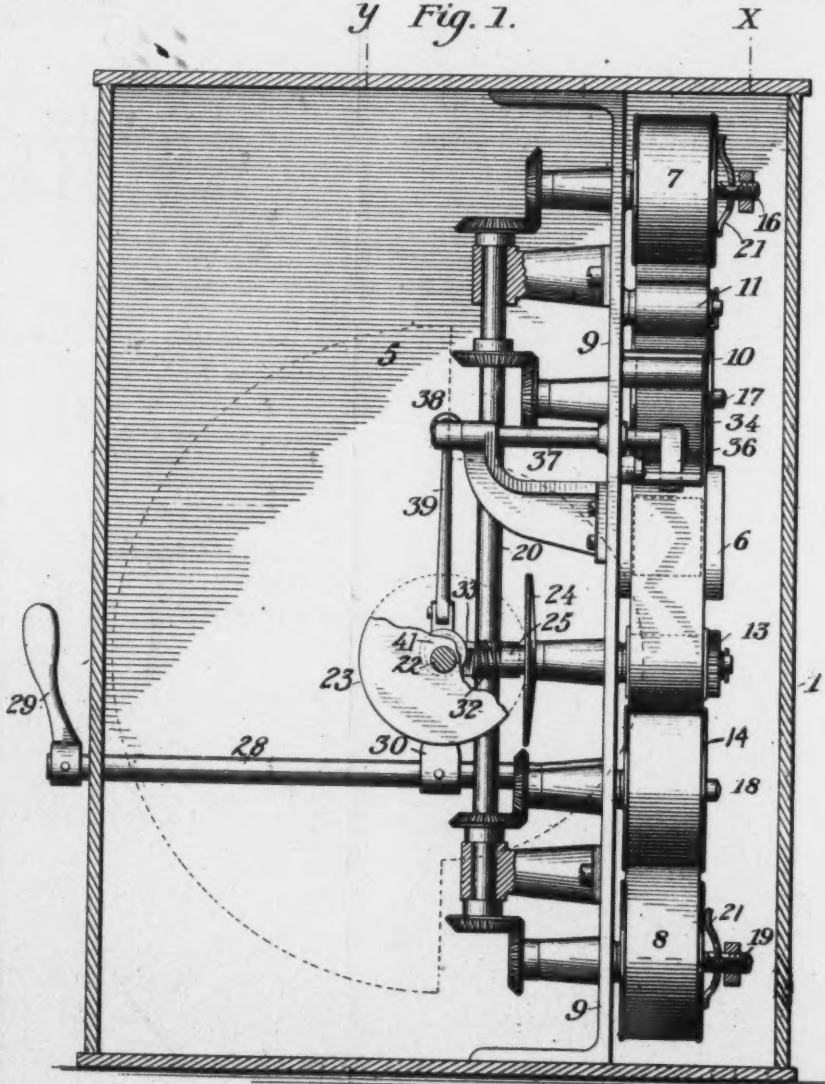
H. CASLER.  
CONSECUTIVE VIEW APPARATUS.

(Application filed Feb. 26, 1898.)

(No Model.)

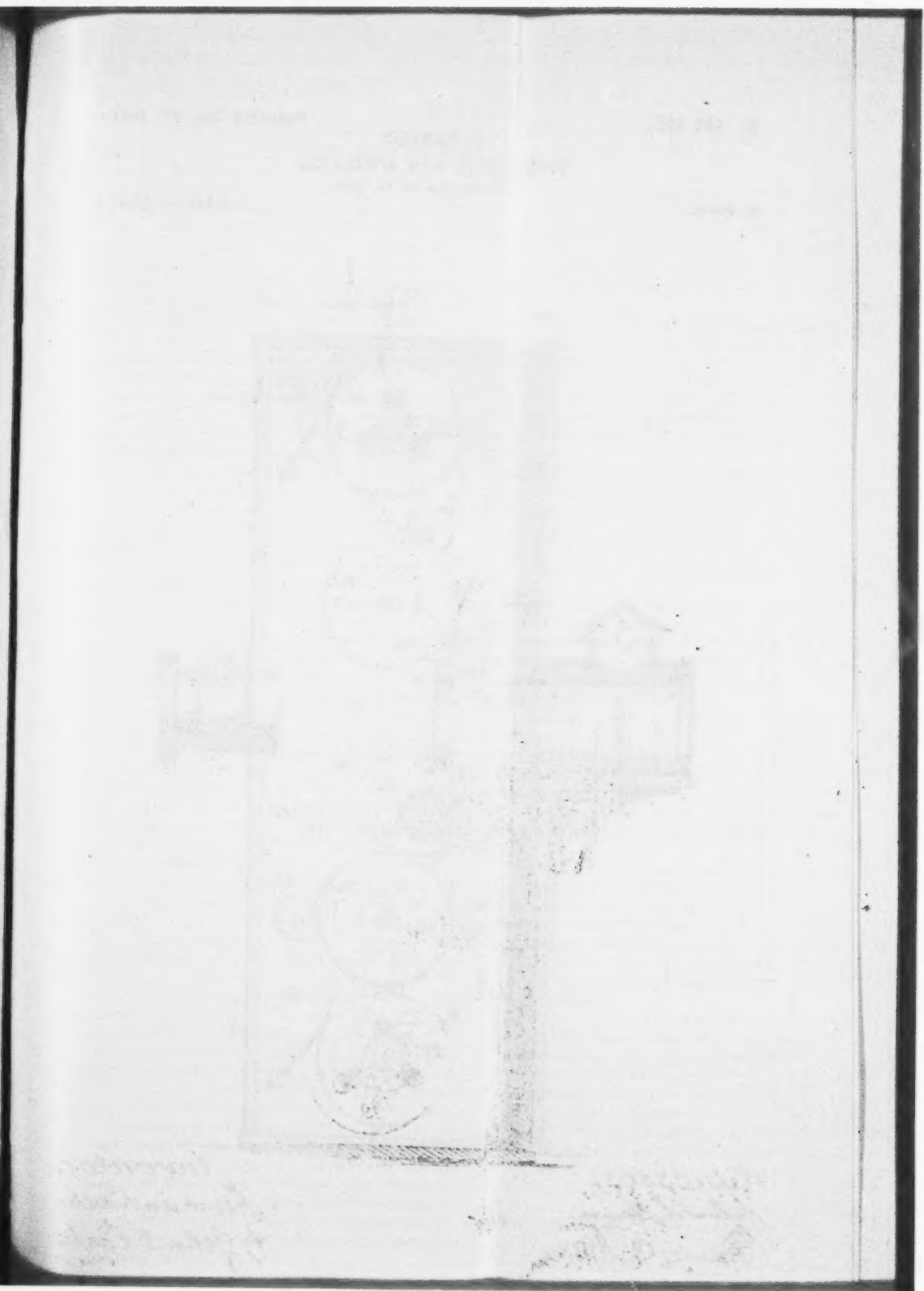
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Fig. 1.



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No. 666,495.

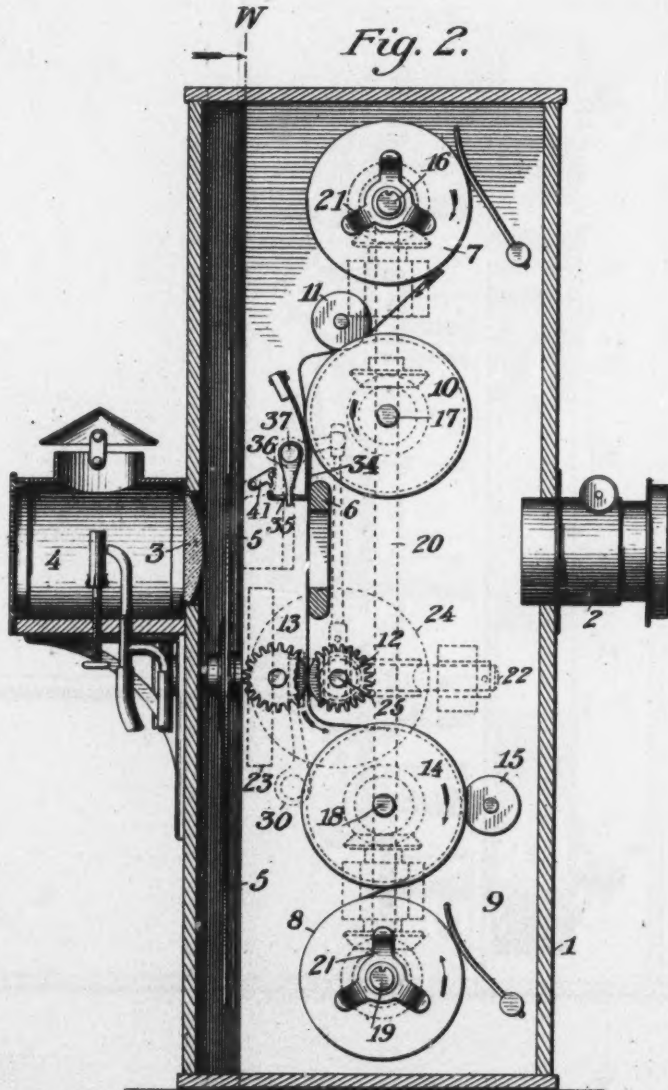
Patented Jan. 22, 1901.

H. CASLER.  
CONSECUTIVE VIEW APPARATUS.

(Application filed Feb. 28, 1900.)

(No Model.)

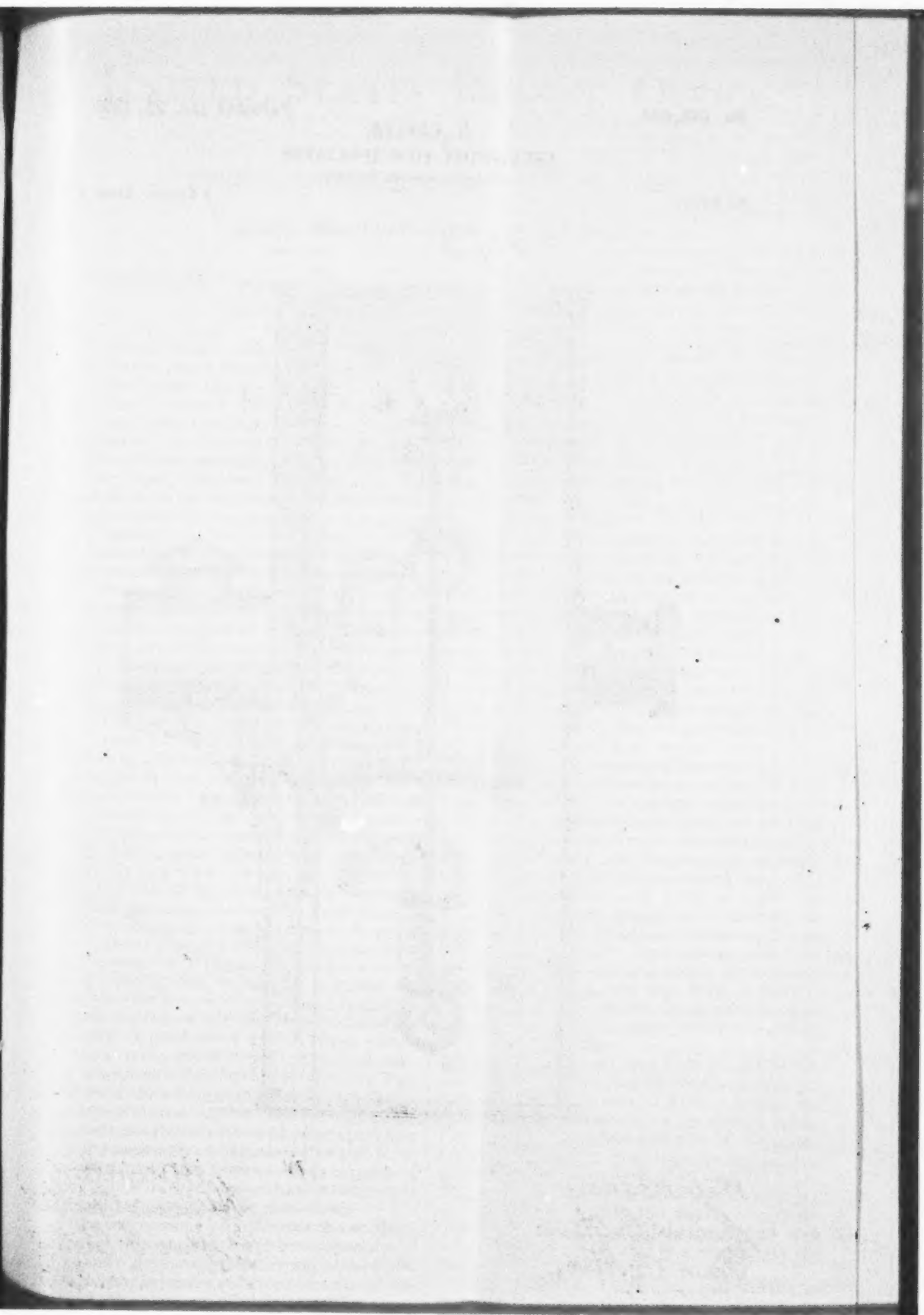
3 Sheets—Sheet 2.



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No. 666,495.

H. CASLER.

Patented Jan. 22, 1901.

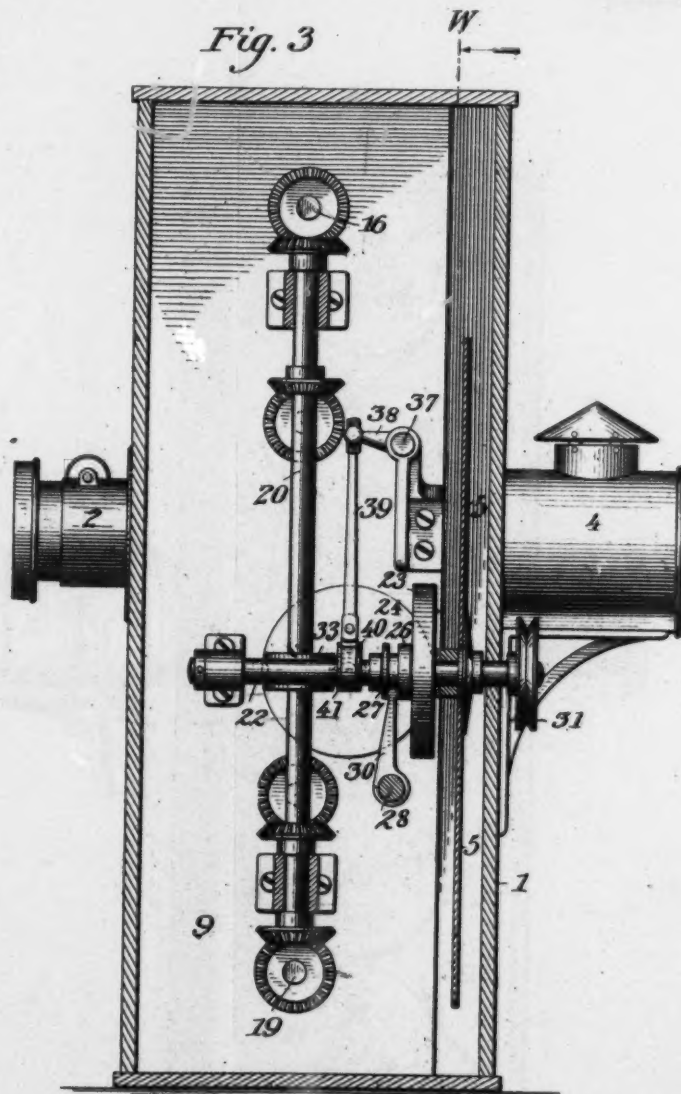
CONSECUTIVE VIEW APPARATUS.

(Application filed Feb. 26, 1896.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 3



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Atty

# UNITED STATES PATENT OFFICE.

HERMAN CASLER, OF CANASTOTA, NEW YORK.

## CONSECUTIVE-VIEW APPARATUS.

SPECIFICATION forming part of Letters Patent No. 666,495, dated January 22, 1901.

Application filed February 26, 1896. Serial No. 580,810. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN CASLER, a citizen of the United States, residing at Canastota, in the county of Madison and State of New York, have invented a new and useful Improvement in Consecutive-View Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to consecutive-view apparatus and to strip or film feeding mechanism therefor, and particularly to projecting-lanterns designed to reproduce upon a screen the movements of moving objects by means of a rapid succession of views of said objects, showing the different positions assumed in their movements. In projecting-lanterns of this description heretofore used great difficulty has been experienced in securing sufficient illumination, because the film-feeding mechanisms employed for bringing into the field of the lens successive views produce so much vibration when operated at the required speed that it has been impracticable to permit the passage of light through the film during more than a brief portion of the time during which each view is actually within the field of the lens, and also because the small pictures necessarily used require excessive enlargement by the lantern in order to produce satisfactory results, it having been found impossible hitherto to produce a strip-feeding mechanism, either for cameras for taking the pictures or for projecting-lanterns, which is capable of sufficiently rapid feeding of the film to produce or utilize larger views.

In the camera which forms the subject-matter of a separate application for Letters Patent of even date herewith, Serial No. 580,811, I have produced a camera capable of producing upon a flexible sensitive photographic film a rapid succession of negative views of moving objects, and this instrument is capable of taking much larger views than instruments for similar purposes heretofore used.

In the instrument which forms the subject-matter of this application I have shown and described a projecting-lantern capable of producing upon a screen the movements of objects which have been photographed by a con-

secutive-view camera by means of a flexible sensitive film carrying a succession of positive views, such as may be made by printing upon sensitive film the negative views produced by a consecutive-view camera. The film-strip-feeding mechanism employed in this projecting instrument and which forms the essential feature thereof is a modification of the film-feeding mechanism used in my consecutive-view camera.

My invention consists in the novel means provided for compensating for slipping or shrinkage of the film, in the novel means provided for rewinding the film, in the novel construction of the film-feeding apparatus, and in the novel combination, construction, and arrangement of the parts of the apparatus.

The objects of my invention are, first, to provide a projecting-lantern for reproducing upon a screen the motion of moving objects, which shall be capable of producing views of larger size and with better illumination than have been produced by lanterns for similar purposes heretofore used; second, to provide an improved film-feeding apparatus for feeding the picture-strip; third, to provide means for compensating for shrinkage of the film or slipping of the film-feeding mechanism; fourth, to provide improved means for rewinding the film, and, fifth, to make the projecting-lantern simple in construction, compact, durable, and easily operated. These objects are attained in the projecting-lantern herein described, and illustrated in the drawings which accompany and form a part of this application, in which the same reference-numerals indicate the same or corresponding parts, and in which—

Figure 1 shows an end view of the mechanism of the projecting-lantern and is a section upon the line *ww* of Figs. 2 and 3, the shutter-disk being shown by dotted lines. Fig. 2 shows the right-hand side of the mechanism, particularly the strip-feeding drums and rollers, and is a section on the line *xx* of Fig. 1. Fig. 3 shows the left-hand side of the mechanism, especially the shafts and gearings by which the strip-feeding drums and rollers are operated, and is a section on the line *yy* of Fig. 1.

In the drawings, 1 is the box which incloses the mechanism of the lantern. In its front

face is an ordinary objective lens 2 and in its rear face is a condensing-lens 3, behind which is supported a calcium light or other suitable means of illumination. Between the lens and the objective 2 is a shutter-disk 5, the contour of which is shown in Fig. 1 by dotted lines, revolubly mounted and arranged in its revolution to cut off light for a portion of the time, and also a support 6 for a transparent and flexible strip carrying or having on its surface a succession of views which are to be projected by the lantern upon a screen. The plate 6 is apertured to permit the passage of light between the lenses. The picture-strip is drawn from a spool 7 and as it passes through the field of the lens is wound upon a second spool 8. These spools, together with the strip-feeding mechanism and the support 6, are supported by a transverse frame plate or partition 9, secured to the bottom and top of the case 1. The strip unwinds from the spool 7 and passes between a delivery-drum 10 and an idler-roll 11, (see Fig. 2,) which serves to hold the strip in contact with the drum 10, and thence over the supporting-plate 6, between auxiliary feeding-rolls 12 and 13, the function of which is to feed the strip across the field of the lens and over a take-off drum 14, against the surface of which it is held by an idler-roll 15, and thence upon the winding-spool 8. The spool 7, drums 10 and 14, and the spool 8 are mounted upon shafts 16, 17, 18, and 19, respectively, which have bearings in projecting bosses in the supporting-plate 9, and these shafts are driven by bevel-gears from a vertical shaft 20, mounted upon the left-hand side of the frame-plate 9 in Figs. 1 and 3. The shaft 20 is itself driven by means to be hereinafter described.

The delivery and take-off drums 10 and 14 are secured to the shafts upon which they are mounted. The spools 7 and 8 are loose upon the shafts upon which they are mounted, but may be connected therewith and driven therefrom by friction connections formed by three-legged spring-collars 21, 21, mounted upon and themselves secured to the shafts 16 and 19 and pressed against the ends of the spools 7 and 8 by screw-nuts. By pressing against the ends of the spools these collars produce sufficient friction to cause the spools to revolve. In the operation of the machine the spring-collar of the spool from which the film is being drawn is always relieved by unscrewing its nut, so that the spool shall not be driven by its shaft, but shall revolve only as the strip is unwound from it by the feeding-mechanism. This is to prevent too-rapid unwinding of the strip from the spools. In order to allow for possible slipping of the picture-strip, as well as to allow for the increase in diameter of the spool upon which the strip is wound, as the strip is wound from the one spool to the other, the gearing is so designed that the spools 7 and 8 tend to rotate

driven by their shafts. The tension on the picture-strip as it is fed forward by the drums 10 and 14 causes the spool upon which the strip is wound to revolve slightly slower than its shaft, slipping somewhat beneath the spring-collar 21.

The vertical shaft 20 is driven by a horizontal driving-shaft 22 by means of a variable-speed gearing, the purpose of which will be apparent hereinafter. The shaft 22 carries a friction-wheel 23, and a corresponding friction-disk 24 is mounted upon a horizontal shaft 25 at right angles to the shaft 22, the periphery of the wheel 23 being in contact with the surface of the disk 24, so as to drive the disk 24 by frictional contact. The friction-wheel 23 revolves with its shaft, but is splined or keyed thereto, so as to be capable of longitudinal motion thereon, and has a hub 26, with a groove 27 therein. A rock-shaft 28, the end of which projects outside of the case 1 and carries a handle 29, has an arm 30, the end of which enters the groove 27. By moving the hand-lever 29 the friction-wheel 23 may be caused to move along its shaft 22 toward or away from the center of the friction-disk 24, thus varying the speed of the friction-disk 24 and shaft 25 with respect to the wheel 23 and shaft 22. The shaft 22 is provided with a band-wheel 31 outside of the case 1, by which it may be revolved from some external source of power.

The shaft 25 carries a worm 32, which engages with a worm-wheel 33 upon the vertical shaft 20. Rotation of the band-wheel 31 and driving-shaft 22 therefore causes rotation of the shaft 20 and the operation of the parts of the feeding mechanism, driven thereby. The auxiliary feed-roll 12 above mentioned is mounted upon and driven by the same shaft 25 upon which the friction-disk 24 and worm 32 are mounted. The auxiliary feed-roll 13 is mounted upon a spindle and is geared to the roll 12 to revolve at an equal speed therewith. The gearing by which the shaft 25 drives the shaft 20 and the diameter of the auxiliary feed-rolls 12 and 13 are such that the peripheral velocity of the auxiliary feed-rolls is twice or somewhat more than twice as great as the peripheral velocity of the feed-drums 10 and 14. This is in order that the auxiliary feed-rolls, which, as will be seen subsequently, operate to feed forward the picture-strip during about one-half of the time, may feed forward as much of the strip as is fed forward by the drum 10, which operates continuously.

The auxiliary feed-rolls 12 and 13 are always in contact with the picture-strip and always tend to feed the same. The movement of the picture-strip across the plate 6 is prevented, however, during the time that the shutter is open by a spring-catch 34, which presses the picture-strip against the supporting-plate 6. The end of the spring 34 is up-

which projects through and has bearings in the supporting-plate 9 and carries upon its inner end an arm 38, which is moved up and down by an eccentric-rod 39, secured to an eccentric-strap 40 of an eccentric 41, mounted upon the driving-shaft 22. The rock-shaft 37 and arm 38 are thereby caused to vibrate each time the driving-shaft 22 revolves, each time lifting the spring 34 and permitting a portion of the picture-strip to be fed across the plate 6 by the action of the auxiliary feed-rolls 12 and 13. The position of the arm 36 and its amplitude of movement and the length of the slot 35 are so adjusted that the spring 34 holds the picture-strip when the shutter is open and releases it as soon as the shutter is closed.

The shutter-disk 5, which controls the passage of light through the film, is a disk secured to the driving-shaft 22, with its periphery in line with the axis of the condensing and objective lenses. A portion of the periphery of the shutter-disk is cut away, so as to permit the passage of light, as shown in dotted lines in Fig. 1.

The operation of my projecting-lantern is as follows: The position of the parts of the mechanism of the lantern as shown in the drawings is that occupied when the shutter is open and a picture is in the field of the lenses 2 and 3. The picture-strip is being unwound from the spool 7 and is being wound upon the spool 8, the spool 8 being driven by its shaft 19 through the spring-collar 21. The auxiliary feed-rolls 12 and 13 are revolving at somewhat more than twice the peripheral velocity of the drums 10 and 14 and are in contact with the picture-strip, but are unable to move the same, as the strip is held by the spring-catch 34 pressing it against the plate 6. A loop of loose strip is being formed between the drum 10 and the plate 6, and a similar loop previously formed below the auxiliary feed-rolls 12 and 13 is being taken up by the drum 14. The instant the shutter-disk 5 in its revolution cuts off the light from the lens 3 the arm 36 upon the rock-shaft 37 trips the spring 34, lifting it away from the plate 6, and thus releases the picture-strip. The auxiliary feed-rolls 12 and 13 instantly draw this picture-strip across the field of the lens until the loop of loose strip between the drum 10 and the plate 3 has been taken up. This is all done during the time that light is cut off. An instant afterward in its revolution the shutter-disk 5 again permits the passage of light, the arm 36 swinging backward and permitting the spring 34 to press the picture-strip against the plate 6 an instant before the shutter opens, and so holding the picture-strip stationary. By the feeding forward of the strip during the time the shutter was closed a new picture has been brought into the field of the lens, and this picture is now projected by the lantern upon the screen in place of the picture previously projected. The alternations of light and darkness take

place so rapidly that the fact that the light is not continuous is not observed, neither is the change of picture observed, but only the appearance of motion of the images seen upon the screen due to the gradual change in positions of these images in the successive views. The take-off drum 14 carries away the strip as it is fed forward by the auxiliary rolls 12 and 13, and the strip is wound from the drum 14 upon the spool 8. The greater portion of the work of feeding the picture-strip is done by the constantly-revolving drums 10 and 14, the auxiliary feed-rolls 12 and 13 being required only to do the work of feeding the short length of film which is between these rolls and the drum 10. The rock-shaft 37, upon which the arm 36 that operates the spring-catch is mounted, is driven from the same horizontal shaft 22 which carries the shutter-disk 5. Therefore the operation of the catch 34 is always synchronous with the operation of the shutter and is not affected by any change in speed of the strip-feeding mechanism with relation to the speed of the shutter. If there were no slipping of the picture-strip upon the feed-rolls and no shrinkage of the strip, such as is due to atmospheric causes or such as frequently takes place during development, there would be no occasion for varying the speed of the film-feeding mechanism with respect to the shutter, and the relative speed of the film-feeding mechanism to the shutter might be constant, as in the camera described in my said application, Serial No. 580,811; but slipping and shrinkage of the strip frequently take place to a slight extent, the one causing a smaller length of film to be fed across the field of the lens than is proper each time the catch 34 is operated and the other causing too great a length of film to be fed across the field of the lens than is proper. Too rapid or too slow feeding of the film has the effect of causing the picture upon the screen to apparently creep up or down the screen; but by altering slightly the length of picture-strip fed across the field of the lens each time the catch 34 is operated, which may be done by varying the speed of the film-feeding mechanism with respect to the speed of the shutter, this creeping of the picture may be prevented. For this reason the variable-speed mechanism shown in Fig. 3, and comprising the friction-wheel 23 and disk 24 and the parts connected therewith, is employed. By moving the hand-lever 29 so as to move the wheel 23 toward the center of the disk 24 the speed of the disk 24, shafts 25 and 20, and the film-feeding drums may be increased. By moving the hand-lever 29 so as to move the wheel 23 toward the circumference of the disk 24 the speed of the disk 24 and the shafts 25 and 20 and the feed-drums may be reduced. In this manner the operator, watching the picture upon the screen, may move the hand-lever 29 so as to keep this picture practically stationary, so far as its position upon the screen is concerned, without regard to slip-

ping of the film between the feed-rollers, which may take place, or to shrinkage of the strip, which may have taken place. After the picture-strip has been nearly unwound from the supply-spool 7 the operation of the apparatus is stopped. In order to rewind the strip upon the spool 7, so as to prepare for another exhibition, a door in the side of the case (not shown) is opened to afford access to the mechanism within the case, and the spring-catch 34 is lifted away from the plate 6 and a small detent 41 is dropped to hold the spring away from the plate 6, so as to leave the strip free. The nut upon the shaft 16 is screwed down, so as to press the collar 21 upon said shaft against the spool 7, and the nut upon the shaft 19 is relieved, so as to leave the spool 8 loose upon said shaft. The band-wheel 31 is then rotated in reverse direction, winding the strip from the spool 8 to the spool 7. When the strip has been wound upon the spool 7 sufficiently far, rotation of the wheel 31 is stopped, the nut upon the shaft 16 is loosened and the nut upon the shaft 19 tightened, as before, the detent 41 is lifted to permit the spring to slip down against the plate 6, and the consecutive-view apparatus is again ready for operation.

The shutter and the feeding mechanism shown in the drawings are arranged to admit the passage of light during half the revolution of the shutter; but because all of the parts of the strip-feeding mechanism except the catch 34 and the parts which have directly to do with the operation thereof are in continuous and uniform motion, so that no vibration is caused thereby, the feeding mechanism is capable of feeding the required length of picture-strip in a much shorter time than one-half of the revolution of the shutter-disk at the speed at which it is necessary to operate the machine in order to produce the desired continuous effect upon the screen. In this manner the intensity of illumination upon the screen may be greatly increased by increasing the time during which the shutter is open. The strip-feeding mechanism may be caused to feed the strip so rapidly across the field of the lens that it will be possible to dispense entirely with the shutter and shutter mechanism in many cases, the strip being fed so rapidly across the field of the lens when it moves and the time during which it is motionless in said field being so much longer than the time when it is moving across the field of the lenses that when it does move this motion will be imperceptible to the eye.

Having thus completely described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a consecutive-view apparatus, the combination, with a flexible picture-strip containing a series of consecutive regularly-spaced views of a moving object, of continuously-moving strip-feeding devices for feeding the strip by frictional contact, an inter-

the strip intermittently and at intervals corresponding to the distance between the pictures, thereby momentarily preventing the feeding of the strip across the field of view, and variable-speed gearing by which the relative speed of the strip-feeding devices and catch may be varied during the operation of the apparatus, substantially as described.

2. In a consecutive-view apparatus, the combination, with the lenses and illuminating apparatus of a projecting apparatus, of continuously-moving strip-feeding devices for feeding a picture-strip through the field of said projecting apparatus, an intermittently-operating catch arranged to grasp the strip intermittently, thereby preventing momentarily the feeding of the picture-strip through the field of the projecting apparatus, and means for varying the length of strip fed forward while the strip is released by the catch, substantially as described.

3. In a consecutive-view apparatus, the combination, with the lenses and illuminating apparatus of a projecting apparatus, of continuously-moving strip-feeding devices for feeding a picture-strip through the field of said projecting apparatus, an intermittently-operating catch arranged to grasp the strip intermittently, thereby momentarily preventing the feeding of the picture-strip through the field of the projecting apparatus, and means for varying the relative speed of the strip-feeding mechanism and catch, whereby the length of strip fed forward each time the catch is released may be varied, substantially as described.

4. In a consecutive-view apparatus, the combination, with the lenses and illuminating apparatus of a projecting apparatus, of continuously-moving main feeding devices arranged to deliver and to carry away a picture-strip, auxiliary feeding devices moving continuously but at higher peripheral velocity than the main feeding devices, and arranged to feed the strip through the field of the projecting apparatus, acting upon the strip by frictional contact, an intermittently-operating catch arranged to grasp the strip intermittently, thereby preventing momentarily the feeding of the strip through the field of the projecting apparatus, and a changeable-speed gear connecting the driving members of the strip-feeding devices and of the catch, whereby the speed of the strip-feeding devices relative to the catch may be varied, substantially as described.

5. In a consecutive-view apparatus, the combination, with the lenses and illuminating apparatus of a projecting apparatus, of supply-spool carrying a picture-strip, a delivery feeding-drum arranged to unwind the strip from said spool, auxiliary feed-rolls acting upon the strip by frictional contact and having a greater peripheral velocity than said delivery-drum, and arranged to feed the strip through the field of the projecting apparatus

wound, means for rotating said spool; a take-off drum arranged to carry the strip from the auxiliary feed-rolls to said winding-spool, an intermittently-operating catch arranged to grasp the film intermittently, thereby preventing momentarily the feeding of the strip through the field of the projecting apparatus, and changeable-speed gearing connecting the driving members of the catch and delivery-drum, whereby the rate of feeding of the strip through the apparatus, relative to the speed of the catch, may be varied, substantially as described.

6. In a picture-strip-feeding mechanism for consecutive-view apparatus, the combination, with a delivery-drum for delivering the strip, a take-off drum for carrying away the strip, means for holding the strip in contact with said drums, a winding-spool, a shaft geared to said drums and winding-spool for rotating the same, and auxiliary feed-rolls likewise geared to said shaft and arranged to rotate at a higher peripheral velocity than said delivery and take-off drums, of a catch arranged to grasp the strip and prevent it from being fed by said auxiliary feed-rolls, a shaft and connecting mechanism operated thereby for operating said catch intermittently, friction-disks connected to said shaft and to a shaft of the strip-feeding rolls, the periphery of one of said disks being in contact with the face of the other disk, and means for moving the first disk radially with respect to the second disk, whereby the speed of the strip-feeding rolls relative to the speed of the catch may be varied.

7. In a picture-strip-feeding mechanism for consecutive-view apparatus, the combination,

with a supply-spool, a winding-spool, continuously-moving main feeding devices arranged to unwind the strip from the supply-spool and to carry the strip to the winding-spool, a shaft for driving the supply and winding spools and strip-feeding devices, and clutches connecting the driving-shaft with said supply and winding spools, whereby either of said spools may be thrown out of engagement with said shaft, of auxiliary feed-rolls for feeding the strip across the field of view, arranged to rotate at a higher peripheral velocity than the main feeding devices, an intermittently-operating catch arranged to grasp the strip intermittently and thereby to prevent the strip from being fed across the field of view, and a detent adapted to engage with the catch and hold the same out of contact with the strip.

8. In a consecutive-view apparatus, the combination, with a continuously-moving strip-feeding device for feeding a strip through the field of the apparatus, of an intermittently-operating catch arranged to grasp the strip intermittently, thereby momentarily preventing the feeding of the strip through the field of the apparatus, and speed-varying mechanism interposed between said feeding devices and said intermittently-operating catch, whereby the length of the strip fed forward each time the catch is released may be varied.

In testimony whereof I affix my signature in presence of two witnesses.

HERMAN CASLER.

Witnesses:

A. A. SCHENCK,  
K. F. CASSIDY.

(No Model.)

3 Sheets—Sheet 1.

W. LATHAM.  
APPARATUS FOR PHOTOGRAPHING OBJECTS IN MOTION AND FOR  
PROJECTING PICTURES.

No. 600,113.

Patented Mar. 1, 1898.

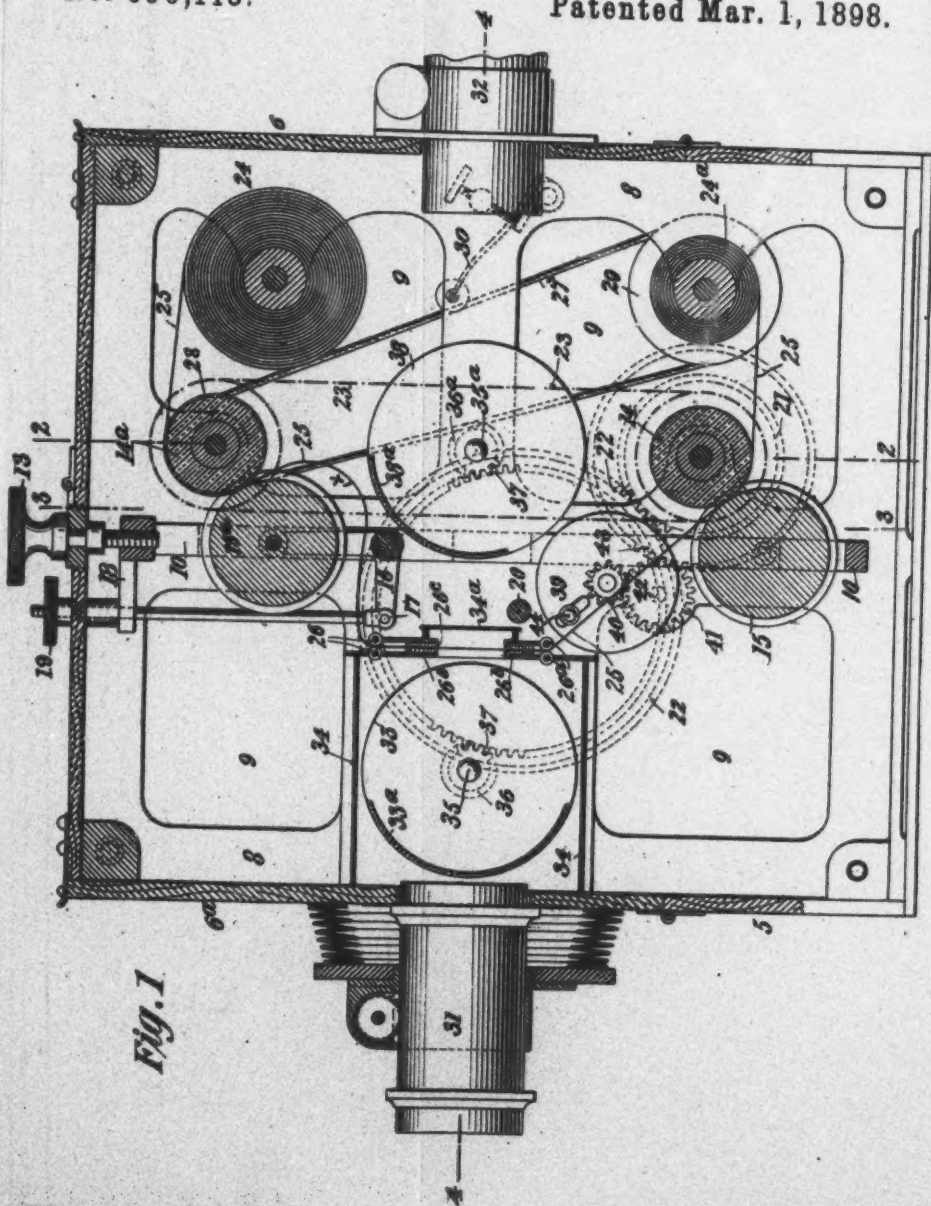


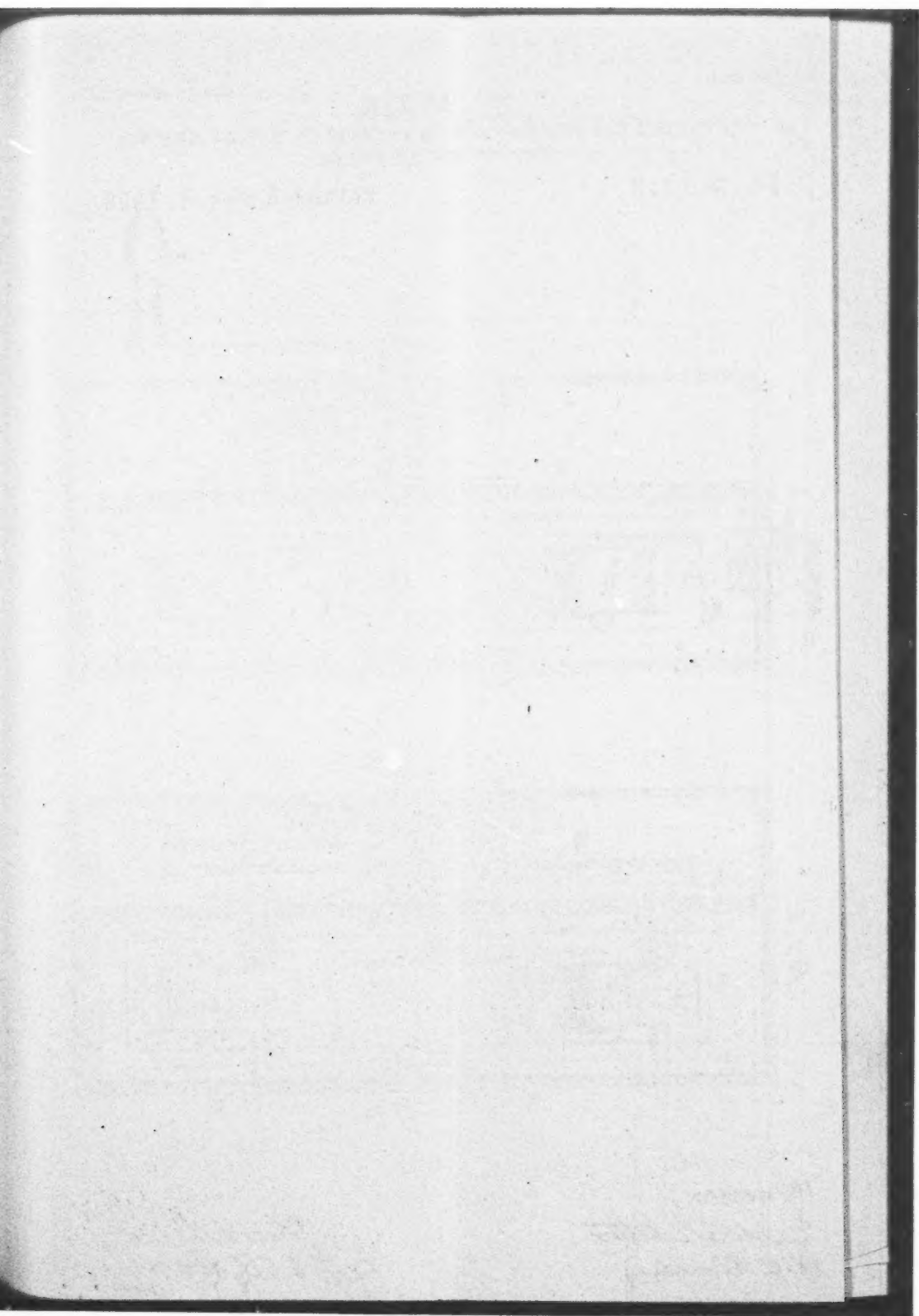
Fig. 1

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(No Model.)

3 Sheets—Sheet 2.

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APPARATUS FOR PHOTOGRAPHING OBJECTS IN MOTION AND FOR  
PROJECTING PICTURES.

No. 600,113.

Patented Mar. 1, 1898.

Fig. 3

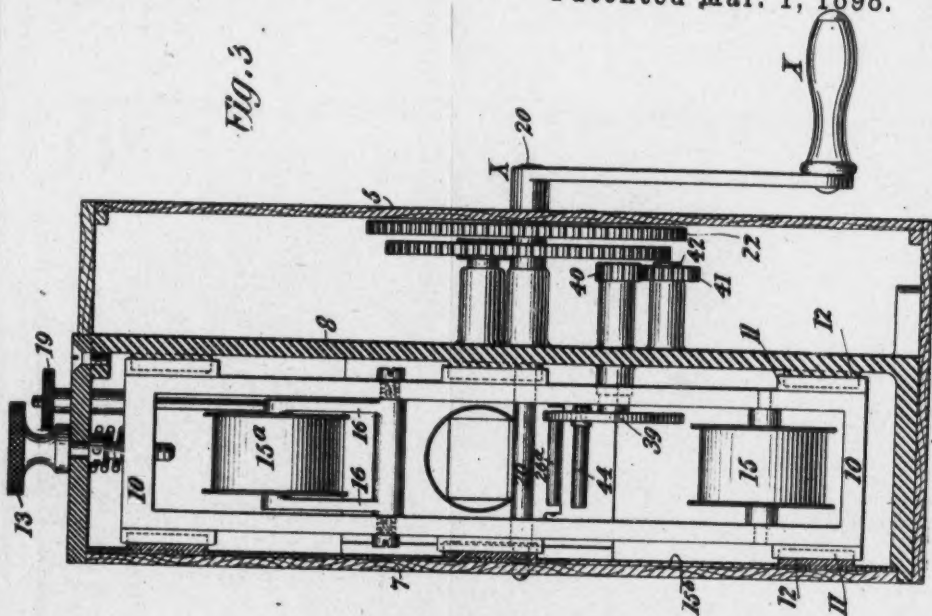
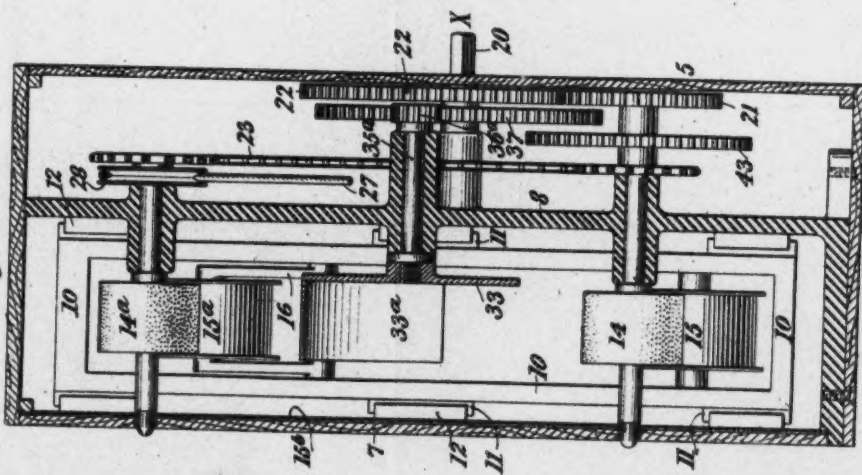


Fig. 2



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(No Model.)

3 Sheets—Sheet 3.

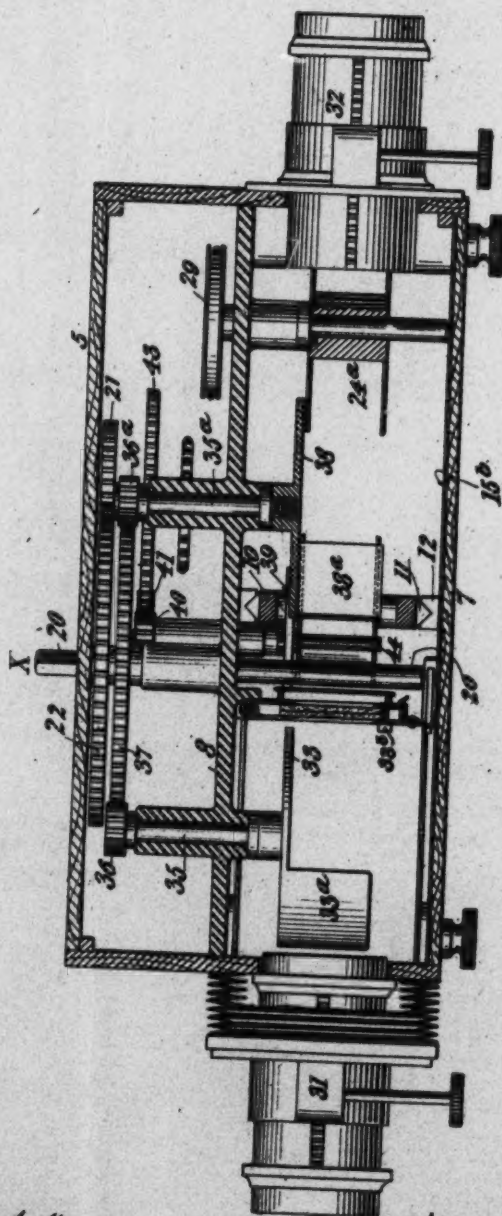
W. LATHAM.

APPARATUS FOR PHOTOGRAPHING OBJECTS IN MOTION AND FOR  
PROJECTING PICTURES.

No. 600,113.

Patented Mar. 1, 1898.

Fig. 4



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# UNITED STATES PATENT OFFICE.

WOODVILLE LATHAM, OF NEW YORK, N. Y.

APPARATUS FOR PHOTOGRAPHING OBJECTS IN MOTION AND FOR PROJECTING PICTURES.

SPECIFICATION forming part of Letters Patent No. 800,113, dated March 1, 1898.

Application filed December 26, 1896. Serial No. 617,012. (No model.)

*To all whom it may concern:*

Be it known that I, WOODVILLE LATHAM, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Apparatus for Photographing Objects in Motion and for Projecting the Pictures Upon a Screen or other Surface, of which the following is a specification.

My invention relates to apparatus for photographing objects in motion and for projecting the pictures upon a screen or other surface whether by intermittent or continuous movement of the film.

The object of the invention is to devise an apparatus of the character indicated which shall be free from the defects incident to the constructions heretofore devised.

In the present apparatus smooth rollers are made use of for feeding the film. Sprocket-machines are apt to tear the picture-strip, besides being otherwise objectionable; but if the strip is carried between smooth rollers it passes through the apparatus not at the rate of a definite number of pictures per turn of the driving-shaft, as in sprocket-machines, but at the rate of a definite number of inches, and as the positive pictures usually differ in size from the negatives because of shrinkage or expansion under the process of development a new difficulty presents itself which an example will explain. Suppose that one hundred inches of celluloid film has been used, and that upon it have been photographed one hundred negatives. Suppose that the negative-strip has been developed and that from it one hundred positives have been printed and developed. A measurement of the positive-strip will show that it is, I will say, only ninety-nine inches long. Let the machinery of the photographic apparatus, in connection, of course, with suitable appliances for projection, be employed to project the positives upon a screen. There will be only one exposure for each of the ninety-nine inches on which the hundred positives appear. The first projection will be that of picture number one together with a part of picture number two. The second projection will be that of the remainder of picture number two together with a larger part of picture number three. The third projection will be that of

the remainder of picture number three, together with a still larger part of picture number four, and so on to the end of the strip. In the apparatus about to be described the driving-roller of each pair of feed-rollers is made of soft rubber or other yielding elastic material and the feed is suitably varied by varying the pressure between the rollers.

In the accompanying drawings, forming a part of this specification, I have shown one embodiment of my invention, the best known to me at the present time, and in the claims at the end hereof I have set forth the features and combinations for which I desire protection. It is to be understood, of course, that I do not limit myself to the particular details of arrangement or construction herein shown, as these may be varied to suit conditions.

In the drawings, in which like parts are indicated by like numerals of reference in the several views, Figure 1 is a side elevation, partly in section, of an apparatus constructed according to my invention; and Figs. 2, 3, and 4 are sections on the lines 2 2, 3 3, and 4 4, respectively, of Fig. 1.

Referring to the drawings, 5 indicates a case of any suitable dimensions and material. Each end of the case 5 is provided with a hinged door 6 6' to render the interior easy of access, and one side 7 of the case is detachably applied for the same reason.

Within case 5 is fitted and secured a frame 8, of metal, which furnishes a support and bearings for the mechanism. This frame, to reduce the weight, is cut away at suitable places, as shown at 9. A sliding frame 10 is mounted in frame 8 and guided by a series of dovetail projections 11 on its sides fitting into corresponding depressions 12 on frame 8 and the inner surface of side 7 of the case. The frame 10 is adapted to be moved up or down by turning the milled head of screw 13, which is fitted through the top of the case and engages with the top of said frame 10.

Numerals 14 14' indicate rollers covered with a proper thickness of a material that is yielding and elastic, such as soft rubber. These rollers are fixed to their shafts, which are suitably supported in frame 8 and in metallic bearings provided on the detachable side 7 of the case, the inner surface of side 7 being preferably lined with metal 15, hav-

ingsaid bearings formed integrally therewith. 15 15<sup>a</sup> are rollers (preferably of hard material and preferably flanged, as shown) loose on their shafts. For some purposes rollers 15 5 15<sup>a</sup> are also made with soft facing. They are driven by the rollers 14 14<sup>a</sup>. The roller 15 is mounted in the sliding frame 10 directly, while roller 15<sup>a</sup> is mounted in said frame by means of arms 16, pivoted to frame 10, as 10 shown, and connected to the bell-crank lever 17, the long arm of which extends through a guide-piece 18 at the upper end of sliding frame 10 and out through the top of the case, where it is provided with a milled head 19. 15 By means of the milled head 19 the bell-crank lever 17 may be turned so as to make the pressure between rollers 14<sup>a</sup> and 15<sup>a</sup> the same as the pressure between rollers 14 and 15. When these two pressures have been 20 once equalized for any position of the frame 10, the equality will not be destroyed by moving said frame up or down and no further turning of the milled head 19 will be necessary during the operation of the apparatus.

25 The roller 14 is driven from the driving-shaft 20, the shaft of said roller being provided at its outer end with gear-wheel 21, which meshes with gear-wheel 22 on said driving-shaft. The roller 14<sup>a</sup> is driven from 30 the shaft of roller 14 by suitable gearing—as, for example, a sprocket-chain 23, which answers the purpose well.

The reels carrying the film or picture-bearing strip 25 are indicated at 24 24<sup>a</sup>, and they 35 are suitably mounted in the case 5 and are easily accessible and removable. The film or picture-bearing strip is drawn from the upper reel 24 and passes between rollers 14<sup>a</sup> 15<sup>a</sup> between the pairs of small guide-rollers 40 26 26<sup>a</sup>, located above and below the opening at the optical axis of the apparatus, thence between the rollers 14 and 15 to the lower reel 24<sup>a</sup>, upon which it is wound by the action of the cord 27, which connects the shafts 45 of roller 14<sup>a</sup> and lower reel 24<sup>a</sup> by passing over pulleys on the respective shafts. The pulley 28 on the shaft of roller 14<sup>a</sup> is provided with a groove of such shape as to prevent the slipping of the cord 27, (see Fig. 2.) and the 50 pulley 29 on the shaft of lower reel 24<sup>a</sup> is so formed as to promote the slipping of said cord. (See Fig. 4.)

The adjustable spring-roller device 30 (shown in dotted lines in Fig. 1) serves to 55 give the cord 27 such tension that it slips continuously on the pulley of the shaft of reel 24<sup>a</sup> to an extent sufficient to prevent the breaking of the film between the reel and the rollers 14 15, but not too much to prevent the 60 winding of the film upon the reel regularly. This spring-roller device 30 is attached to the inside of the case in suitable relation to the cord 27 and is so constructed as to be capable of exerting by suitable adjustment the 65 necessary amount of pressure on said cord.

There are two doors at the opening of the optical axis of the apparatus separately

hinged to the supporting-frame 8, and in these doors are mounted the small guide-rollers 26 26<sup>a</sup>, one pair in each door. These rollers do not quite touch each other. Between the plates supporting these guide-rollers are cemented on the side toward the objective 31 pieces of some very soft animal skin 26<sup>b</sup>, with fur extending downward. On the side toward the objective 32 are cemented pieces of 75 velvet, felt, or similar substance 26<sup>c</sup>. The fur brushes without injury the sensitive side of the film as the latter moves downward. When the film is to be transferred from the 80 lower to the upper reel, the outer door is opened to prevent raking of the sensitive surface. When the two doors are shut together, these cemented pieces press against each other, so that the film 25 passes between them 85 with suitable friction. A regulating-screw 33<sup>b</sup>, operating between the two doors, makes it possible to vary the friction to suit films of varying thickness. The objective 31 is the one employed for photographing. It and its bellows are detachably connected to the case and are to be removed, as are also the shutter 33 and its inclosing box and the cap 34<sup>a</sup>, back of the opening at the optical axis, when the apparatus is used for projecting.

The shutter 33 comprises a disk, from which projects perpendicularly the "guillotine-shutter" proper, 33<sup>a</sup>, which may be curved, as shown, or it may be flat. The advantage 100 claimed for this shutter is that it alternately cuts up and down, and that the defects due to an upward-cutting exposure and those due to a downward-cutting exposure in photographing the pictures neutralize each other when the pictures are rapidly projected, and 105 that the effect of a uniform exposure is thereby produced.

The shutter 33, which is made use of when photographing, is mounted in a box 34 on a shaft 35, having bearings in frame 8, but not extending into the box 34. This box is open toward the objective 31 and toward the film 25 on the opposite side, and it fits well against the inside of door 6<sup>a</sup> or against the bellows of the objective 31, if the door is not present, 110 and against the outer one of the two small doors in which the guide-rollers 26 26<sup>a</sup> are mounted.

The outer end of the shaft 35 of shutter 33 is provided with a pinion 36, which is adapted 115 to mesh with gear-wheel 37, fixed to the driving-shaft 20, by which means the desired movement is communicated to the shutter.

The shutter 38 38<sup>a</sup> may or may not be made use of when projecting; but it is preferably 120 used when the film moves intermittently and must be used when the film moves continuously. It is the same as shutter 33 33<sup>a</sup> (except as to the time of exposure it allows) and is similarly mounted in frame 8 in proper relation to the opening in the optical axis of the apparatus, as seen in Fig. 1. It also has the necessary movement communicated to it 125 from the gear 37 on the driving-shaft 20, which

gear meshes with a pinion 36<sup>a</sup> on the end of shaft 35<sup>a</sup> of said shutter.

The cap 34<sup>a</sup> fits upon a projection on the rear door at the optical axis. It is easily removable and its purpose is to prevent the light through the objective 31 at the moment of exposure from reaching any part of the film except that on which the picture is to be photographed.

A disk 39 is mounted below the optical axis in proper relation to the rollers 14 15 and moves in the same plane with them, its shaft having bearings in the frame 8 and carrying at its outer end a pinion 40, which meshes with a gear 41 on shaft 42, the gear 41 in turn meshing with gear 43 on the shaft of roller 14. By this arrangement of the gearing the proper direction of movement is given to the disk 39. Perpendicular to the face of the disk 39 is mounted a rod or tube 44, which is adjustable in a slot in said disk (see Fig. 1) to different distances from the center of the disk. During a part of the time of a revolution of disk 39 its rod or tube 44 presses on the film 25 and draws a portion of it down between the doors at the optical axis of the apparatus. The portion drawn down at any one contact of the rod or tube with the film is precisely equal to what the rollers 14 15 have moved forward since the preceding contact. This fact should be marked carefully, because it is the keynote of the apparatus and because it seems not to have been observed heretofore. If the rod or tube 44 is so near to the center of disk 39 that it pulls down less of the film than the rollers 14 15 move forward in the intervals of contact between said rod or tube and the film, then in the intervals of contact the film will be broken or else will be drawn between the small doors at the optical axis by the rollers 14 15 and there will be no rest of the film at the optical axis at the times of exposure. If, on the other hand, the rod or tube 44 is so far from the center of the disk 39 that its first impact with the film draws down a greater length than the rollers 14 15 take up in the interval between the impacts, the fault is corrected at the second impact, and ever afterward the length of film brought down by the rod or tube 44 will depend solely on what the roller 14 in a revolution against the roller 15 can carry forward. The ratio of the time of movement of the film to the time of rest depends on the number of degrees of revolution which rod or tube 44 makes while it is pressing upon the film. Increase of the distance of the shaft of the disk 39 from the taut film between the rollers 26<sup>a</sup> and the rollers 14 15 (coupled with a suitable increase of the distance of rod or tube 44 from the center of 39) will increase the time of rest and diminish the time of movement. If the center of the disk is placed on the side of the film opposite to that where it appears in the drawings, the disk may be of smaller diameter. These facts must be considered in con-

structing the machine to suit varying conditions.

When the apparatus is to be used for photographing, the objective 31 and its bellows and the shutter 33 33<sup>a</sup> and its box 34 are placed in position and the cap 34<sup>a</sup> is put in its place. All the rest of the apparatus is covered by the case 5. The milled head 13 is turned to move the frame 10, so as to give fair pressure between the rollers 14 15 and between the rollers 14<sup>a</sup> 15<sup>a</sup>. Let it be supposed that the rollers 14 14<sup>a</sup> are of such diameters that when they revolve once six inches of film are carried forward, and let it be supposed that the gearing between roller 14 and the disk 39 is such that one revolution of the roller 14 makes six revolutions of the disk 39. When the negatives have been photographed, it will be found that each of them occupies one inch of film. The negatives are developed, the positives are printed and developed, and the pictures are now ready to be projected. In projecting the pictures the objective 31, the shutter 33 33<sup>a</sup>, and the cap 34<sup>a</sup>, covering the optical axis, are removed, and a lamp and condenser are placed near about where the said objective and shutter were previously placed, the objective 31 being already in position. The shutter 33 33<sup>a</sup> may be used or not in the projection. Both of the shutters are readily removable. Now as the film begins to run through the apparatus (a slack portion being provided just below rollers 14<sup>a</sup> 15<sup>a</sup>, as seen at x, Fig. 1) it may be found that the pictures, because of the circumstance that each of them may occupy greater or less than one inch of the film, (due to development, as herein explained,) do not present themselves with their centers at the optical axis at the moments of exposure, because the rollers 14 15 and 14<sup>a</sup> 15<sup>a</sup> feed too slowly or too rapidly. A turn of the milled head 13 in the proper direction will cause a greater or less pressure between the pairs of rollers and so diminish or increase the effective diameter and carrying-surface of the rollers 14 14<sup>a</sup>, and the result will be a proper presentation of the pictures. The slightest tendency to false projection can be seen by the operator as he watches the upper or lower margin of the pictures on the screen, and before the spectators have had opportunity to observe any defect he obviates it. If the pictures are of substantially uniform size, it is unnecessary to touch the milled head 13 after they have begun to present themselves properly. With projection made by my improvements there is no dancing up and down of the pictures, (no quiver,) and the appearance is as natural as a limited number of repeated impressions on the eye can ever be as compared with a continuous impression coming of an uninterrupted stream of light from the objects looked at.

For scientific purposes this apparatus is the only one of which I have any knowledge

that is capable of giving anything like accurate results.

An operative apparatus, as illustrated and described, is very compact and light and can therefore be carried about by hand. A surveyor's tripod answers well to rest it upon. It can be actuated by means of the crank X, (shown in Fig. 3,) or, if more convenient, a pulley can be attached to the driving-shaft 20 and any form of motor employed to run the apparatus.

By removing the disk 39 the apparatus may be employed to project pictures (and to photograph them, though not so well as with the disk) without stopping the film at the moment of exposure.

When the apparatus is constructed to project pictures only, its size may be reduced, as no parts of the photographing appliances 20 are needed.

It is obvious that the reel 24 and the rollers 14' 15", with the regulating device belonging to them, might be dispensed with and the picture-strip be drawn around the lamp from a box or basket placed under the table or that the picture-strip may be put into the form of an endless band. In this case the loop 25 would be unnecessary.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an objective, of a proper guide adapted to conduct a film across the optical axis of the same, two smooth-surfaced rollers between which said film is drawn past the objective, one of said rollers driving the other and having a yielding surface, and means for adjusting the pressure between said rollers.

2. The combination with an objective, of guides adapted to conduct a strip or film past the same, a pair of smooth-faced feed-rollers, one of said rollers being made of yielding and elastic material, appliances for regulating the pressure between said rollers, a shutter, a revolving disk provided with a rod perpendicular to its face and adjustable from the center to the circumference of the disk, and suitable gearing for propelling the movable parts of the apparatus.

3. The combination with an objective, of guides for conducting a strip or film past the same, a pair of smooth-surfaced feed-rollers for said film, one of said rollers being made of yielding and elastic material, appliances for regulating the pressure between said rollers, a dark box in proper relation to the objective and the optical axis, a shutter adapted to revolve in said dark box, a disk revolvably mounted and provided with a rod perpendicular to its face and adjustable from the center to the circumference of the disk, and suitable gearing for actuating the moving parts of the apparatus.

4. The combination with an objective, of a pair of smooth-surfaced feed-rollers adapted to draw a strip or film past the objective,

one of said rollers being made of yielding or elastic material, means for regulating the pressure between said rollers, a revolving guillotine-shutter, and suitable gearing for operating the movable parts of the apparatus.

5. As a means for regulating the movement of a film, the combination with a pair of rollers and suitable guides all adapted to conduct a strip or film, of a rod revolvably mounted on a shaft parallel with said rod and adapted to engage with said film between said guides and said pair of rollers, means for varying the distance between said rod and its shaft, and gearing for actuating the movable parts of the apparatus.

6. An apparatus of the character herein described comprising delivering and receiving reels adapted to carry a strip or film, two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary, a shutter, a photographic objective and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

7. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for adjusting the pressure between the two rollers of one pair and for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary, a shutter, a photographic objective and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

8. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary, guide-rollers for the film above and below the optical axis, a photographic objective, a dark box in proper relation to the objective and the optical axis, a shutter adapted to revolve in said dark box, and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

9. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the re-

spective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary, a shutter, a disk intermediate the two pairs of said feed-rollers and adapted to revolve in the same plane as said feed-rollers, and provided with a rod or tube perpendicular to its face and adjustable from the center to the circumference of the disk, a photographic objective and suitable gearing for giving the necessary movements to said reels, feed-rollers, disk and shutter.

10. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary, guide-rollers for the film above and below the optical axis, a photographic objective, a dark box in proper relation to the objective and the optical axis, a shutter adapted to revolve in said dark box, a disk intermediate of the two pairs of said feed-rollers and adapted to revolve in the same plane as said feed-rollers and provided with a rod or tube perpendicular to its face and adjustable from the center to the circumference of the disk, and suitable gearing for giving the necessary movements to said reels, feed-rollers, disk and shutter.

11. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs greater or less as may be necessary, a revolving guillotine-shutter, a photographic objective and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

12. The combination with delivering and receiving reels adapted to carry a strip or film, of two pairs of smooth-surfaced feed-rollers for said film, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs greater or less as may be necessary, a revolving curved guillotine-shutter, a photographic objective and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

13. In an apparatus of the character herein described, the combination with delivering and receiving reels adapted to carry a picture-strip or film, of two pairs of smooth-surfaced feed-rollers for said picture-strip, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pres-

sure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary to bring the center of each picture to the optical axis at the moment of exposure, a shutter in proper relation to the optical axis, an objective, and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

14. The combination with delivering and receiving reels adapted to carry a picture-strip or film, of two pairs of smooth-surfaced feed-rollers for said picture-strip, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for adjusting the pressure between the two rollers of one pair and for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary to bring the center of each picture to the optical axis at the moment of exposure, a shutter in proper relation to the optical axis, an objective, and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

15. The combination with delivering and receiving reels adapted to carry a picture-strip or film, of two pairs of smooth-surfaced feed-rollers for said picture-strip, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary to bring the center of each picture to the optical axis at the moment of exposure, a disk intermediate of the two pairs of said feed-rollers and adapted to revolve in the same plane as said feed-rollers, and provided with a rod or tube perpendicular to its face and adjustable from the center to the circumference of the disk, an objective, and suitable gearing for giving the necessary movements to said reels, disk and feed-roller.

16. The combination with delivering and receiving reels adapted to carry a picture-strip or film, of two pairs of smooth-surfaced feed-rollers for said picture-strip, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary to bring the center of each picture to the optical axis at the moment of exposure, a disk intermediate of the two pairs of said feed-rollers and adapted to revolve in the same plane as said feed-rollers, and provided with a rod or tube perpendicular to its face and adjustable from the center to the circumference of the disk, a shutter in proper relation to the optical axis, an objective, and suitable gearing for giving the necessary movements to said reels, feed-rollers, disk and shutter.

17. The combination with delivering and

receiving reels adapted to carry a picture-strip or film, of two pairs of smooth-surfaced feed-rollers for said picture-strip, one roller of each pair of yielding and elastic material and the other roller of each pair of suitable material, appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary to bring the center of each picture to the optical axis at the moment of exposure, a revolving guillotine-shutter in proper relation to the optical axis; an objective and suitable gearing for giving the necessary movements to said reels, feed-rollers and shutter.

18. As a means for increasing or diminishing the speed of a film or belt, or for varying the relative rates of revolution of two shafts, the differential frictional gearing herein described consisting of a smooth-surfaced roller of any suitable material cooperating with a smooth-surfaced roller of yielding and elastic material, and appliances for adjusting the pressure between said rollers.

19. In combination, a supporting-frame, two feed-rollers of yielding and elastic material, a sliding frame, as 10, and two smooth-surfaced feed-rollers of suitable material carried by said sliding frame in proper relation to said first-mentioned feed-rollers, so as to form pairs of feed-rollers, and appliances for regulating the pressure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary.

20. In combination, a supporting-frame, two feed-rollers of yielding and elastic material, a sliding frame, as 10, and two smooth-surfaced feed-rollers of suitable material carried by said sliding frame in proper relation to said first-mentioned feed-rollers, so as to form pairs of feed-rollers, and appliances for adjusting the pressure between the two rollers of one pair and for regulating the pres-

sure between the respective rollers of each pair to make the feed of the two pairs together greater or less as may be necessary.

21. The combination with the delivering and receiving reels adapted to carry the film, and the feed-rollers one of which being of yielding and elastic material and the other of any suitable material and adapted to be pressed against the yielding and elastic roller to compress it more or less as may be required during the operation of the apparatus, of a pulley on the shaft of the receiving-reel formed to promote slipping of a driving-cord, a pulley on the shaft of one of the feed-rollers formed to prevent slipping of such cord, and a driving-cord passing over said pulleys, whereby the movement of the receiving-reel is regulated to permit the film to wind itself upon said receiving-reel regularly and without chance of breaking.

22. The combination with the delivering and receiving reels adapted to carry the film, and the feed-rollers one of which being of yielding and elastic material and the other of any suitable material and adapted to be pressed against the yielding and elastic roller to compress it more or less as may be required during the operation of the apparatus, of a pulley on the shaft of the receiving-reel formed to promote slipping of a driving-cord, a pulley on the shaft of one of the feed-rollers formed to prevent slipping of such cord, a driving-cord passing over said pulleys and an adjustable spring-roller to increase or diminish the tension of said cord, whereby the film is caused to wind itself upon the receiving-reel regularly and with safety.

Signed at New York, in the county and State of New York, this 22d day of December, 1896.

WOODVILLE LATHAM.

Witnesses:

J. E. M. BOWEN,  
ALEXIS C. SMITH.

**Defendants' Exhibit No. 35, Chinnoek Agreement.** 3889

ARTICLES OF AGREEMENT, made the 23th day of May, 1895, between C. E. CHINNOCK, of New York City, and F. R. CHINNOCK, of the City of Brooklyn, WITNESSETH as follows:

That the said C. E. Chinnoek and F. R. Chinnoek have agreed and do hereby agree to form a company for the purpose of manufacturing and selling certain Kinetoscopes, of which the said C. E. Chinnoek is the inventor, and for which he agrees, as hereinafter set forth, to make application for Letters Patent of the United States of America, and the said parties to this agreement hereby covenant and agree, each for himself:

3890

FIRST.—That the said C. E. Chinnoek is to superintend the manufacture of said Kinetoscopes, and that the said F. R. Chinnoek is to employ his time and attention in procuring a sale for the same.

SECOND.—Whereas, the said C. E. Chinnoek has already expended the sum of Twelve hundred dollars on the aforesaid invention, it is hereby expressly agreed that the said sum of Twelve hundred dollars shall be paid to the said C. E. Chinnoek from the net profits of this company before the said F. R. Chinnoek shall be entitled to share in the profits thereof, but that after the said Twelve hundred dollars has been so paid, the said parties hereto shall share equally both the profits and losses of the company.

3891

3892

THIRD.—Whereas, the said F. R. Chinnock has heretofore paid to the said C. E. Chinnock the sum of Five hundred dollars as a payment in part of the capital to be paid by him to this company; and whereas the sum of Eleven hundred and fifty dollars has heretofore been paid for the sale of the aforesaid Kinetoscope to the said C. E. Chinnock, it is hereby expressly agreed that the said Eleven hundred and fifty dollars shall be deposited in some bank or trust company to the credit of this co-partnership.

3893

FOURTH.—It is further mutually agreed by the parties hereto that both the said C. E. Chinnock and F. R. Chinnock shall each at the same time deposit the sum of Five hundred dollars whenever they shall mutually agree that such deposits shall be necessary, in some Bank or Trust Company to be hereafter chosen, which money is to be used exclusively for the legitimate purposes of this company. It is further agreed that all checks, drafts, notes and other orders and promises to pay which may hereafter be given by this company shall be signed by both the parties to this agreement.

3894

FIFTH.—Whereas, the said C. E. Chinnock hereby agrees to make application for Letters Patent of the United States of America for the invention herein referred to, now, for and in consideration of the sum of One dollar to him in hand paid by the said F. R. Chinnock, and other valuable consideration as herein set forth, the said C. E. Chinnock hereby grants, conveys, assigns, sells and sets over unto this company and its successors all his rights, title and interest in and to the said invention, and in and to the said Letters Patent for the same

3895

whenever they may be granted, the same to be held and enjoyed by the said company for its own use, and for the use of its successors, to the full end of the term for which said Letters Patent shall be granted as fully and entirely as the same would have been held and enjoyed by the said C. E. Chinnock if this assignment and sale had not been made.

SIXTH.—It is further covenanted and agreed by and between the parties hereto that neither party to this agreement will engage in the business of manufacturing and selling any of said Kinetoscopes on his own account and to the detriment of the interest of this company so long as this company shall last. 3896

F. R. CHINNOCK. (Seal)

C. E. CHINNOCK. (Seal)

In the presence of  
A. H. FUMEL.

The word Company is inserted in place of the word Copartnership. 3897

C. E. CHINNOCK.

3898 **Defendants' Exhibit No. 36, Agreement Between Chinnock & Hough and Werner.**

THIS AGREEMENT, made this 3rd day of May, in the year of our Lord eighteen hundred and ninety-five, between Chas. E. Chinnock of Brooklyn, party of the first part; James E. Hough and Michael Werner of the second part,

3899 Witnesseth, that in consideration of One thousand dollars (\$1,000), now paid by the parties of the second part to the party of the first part, and further sum of One thousand one hundred dollars (\$1,100), to be paid by the party of the second part to the party of the first part, the party of the first part agrees to supply—

Two photographic machines capable of taking photographs at the rate of 46 per second of time and suitable for the manufacture of Kinetoscopic films.

Ten Kinetoscopes similar to the one shown by the party of the first part to the parties of the second part at 157 Sixth Ave., Bklyn, at the date of this contract.

3900 Delivery to be as follows: The photographic machines to be delivered on or before the 20th day of May instant.

The ten Kinetoscopes on or before the 1st day of June next—allowance in time to be made for strikes or other accidents—which prevent the manufacture of his machines—which upon presentation of Bills of Lading to the Hong Kong and Shanghai Bank, the balance of the purchase money aforesaid, namely, Eleven hundred dollars (\$1,100), to be paid.

The necessary instructions in the use of the Photographic machines shall be imparted to the

1301

*Defendants' Exhibit No. 37.*

3901

parties of the second part before said machines are delivered to them.

Signed by the within named parties in the presence of

Witnesses  
WALTER ISAAC  
J. W. LAHEY

JAMES E. HOUGH  
MICHAEL WERNER  
C. E. CHINNOCK

**Defendants' Exhibit No. 37, Hough  
Letter of Jany. 15, 1895.**

3902

15th Jany 1895

From

THE LONDON PHOTOGRAPH CO.

3 Broad St. Buildings,

London, E. C.

Chief office in Europe for Edison's newest and best Phonographs. Largest stock of Records (English & American) Blanks and Phonograph parts.

3903

To MR. CHAS. E. CHINNOCK  
157 6th Avenue, Brooklyn

D Sir

The Photographic M/c —is not to hand nor have I any advice that you have sent it—This is manifestly wrong & I shall hold you responsible for the delay.

Yours Truly

J. E. HOUGH

3904 **Defendants' Exhibit No. 38, Certificate of Incorporation of Maltby Mfg. Co.**

CERTIFICATE OF INCORPORATION

of the

MALTBY MANUFACTURING COMPANY.

3905 We, FRANK D. MALTBY, CHARLES W. CONGDON, E. L. MALTBY and C. D. CONGDON, all being of full age and two-thirds being citizens of the United States, and a majority residents of the State of New York, do hereby certify and set forth: That we propose to form a Business Corporation, pursuant to and in conformity with the acts of the Legislature of the State of New York.

FIRST.—The corporate name of the said Company shall be The Maltby Manufacturing Company.

3906 SECOND.—The object and nature of the business for which said Corporation is to be formed is as follows:

The manufacturing and selling tools and machinery and such other business as may be necessarily incidental thereto, and its business shall be located at the City of Brooklyn, in the County of Kings and State of New York.

THIRD.—The amount of capital stock of the said Company shall be the sum of Twelve thousand dollars.

FOURTH.—The number of shares of which said capital stock shall consist shall be Two hundred and Forty shares each of the par value of Fifty

*Defendants' Exhibit No. 38.*

3907

Dollars and the amount of capital with which said Corporation shall begin business is eight thousand Dollars.

FIFTH.—The location of the principal business office of the said corporation shall be in the City of Brooklyn, in the county of Kings, and State of New York.

SIXTH.—The duration of said Corporation shall be fifty years.

3908

SEVENTH.—The number of Directors of said Corporation shall be four, each of whom is a stockholder having at least five shares of the stock thereof.

EIGHTH.—The names and post office addresses of the Directors of said Corporation for the first year are as follows:

Frank D. Maltby,	Brooklyn, N. Y.
Charles W. Congdon,	" " "
E. L. Maltby,	" " "
C. W. Congdon,	" " "

3909

NINTH.—The post office addresses of the subscribers and the number of shares of stock which each agrees to take in said corporation are as follows:

Names.	Post Office Ad- dresses.	Number of Shares.
Frank D. Maltby,	Brooklyn, N. Y.	115
Charles W. Congdon,	" " "	115
E. L. Maltby,	" " "	5
C. W. Congdon,	" " "	5

3910

In Witness Whereof, we have made and signed this Certificate, in duplicate the 28th day of August one thousand eight hundred and ninety-five.

FRANK D. MALTBY  
CHARLES W. CONGDON  
E. E. MALTBY  
C. D. CONGDON.

3911 State of New York, }  
City of Brooklyn, } ss.:  
County of Kings, }

On the 5th day of September in the year one thousand eight hundred and ninety-five personally appeared before me Frank D. Maltby, Charles W. Congdon, E. L. Maltby and C. W. Congdon, to me known to be the individuals named in and who executed the foregoing Certificate, and they sever-

ally, before me, signed the said Certificate, and acknowledged that they executed the same for the purposes therein set forth.

3912

(Seal.)

FRANK C. LANG,  
Notary Public,  
Kings County.

(Endorsed)

CERTIFICATE OF INCORPORATION

OF

THE MALTBY MANUFACTURING COMPANY.

Tax for privilege of organization  
of this Corporation

\$15.00/100

Under Chapter 143, Law of 1886.

Paid to

State Treasurer before Filing.

3914

STATE OF NEW YORK.

Office of SECRETARY OF STATE.

Filed and Recorded Sep. 6, 1895.

ANDREW DAVIDSON

Deputy Secretary of State.

State of New York, } ss.:  
Office of Secretary of State,

I have compared the preceding with the original 3915  
Certificate of Incorporation of the Maltby Manu-  
facturing Company filed and recorded in this office  
on the 6th day of September, 1895, and do HERE-  
BY CERTIFY the same to be a correct transcript  
therefrom and of the whole of said original.

(Seal) WITNESS my hand and the seal of the  
Secretary of State, at the City of  
Albany, this eleventh day of May,  
one thousand nine hundred and  
eleven.

JOSE E. PIDGEON,  
Second Deputy, Sec. of State.

3916 **Defendants' Exhibit No. 39, McCoy Affidavit.**

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS COM-  
PANY,

Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA.

Defendant.

In Equity.  
No. 5-167.

3917

**Affidavit of Joseph F. McCoy.**

State of New York, }  
County of New York, } ss.:

Joseph F. McCoy, being duly sworn, deposes and says as follows:

3918

I am of mature age; I reside at Rahway, New Jersey, and I am employed by the Edison Manufacturing Company at Orange, New Jersey. In the years 1895, 1896 and 1897, I was connected with William Wilson, of Philadelphia, who was operating automatic phonographs and moving picture machines. Among the machines which were exhibited by us in Philadelphia, Atlantic City and other places in the United States during this period were machines for the direct view exhibition of moving pictures, known as the Chinnock Kinetoscopes,

*Defendants' Exhibit No. 39, Affidavit of Joseph F.  
McCoy.*

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3919

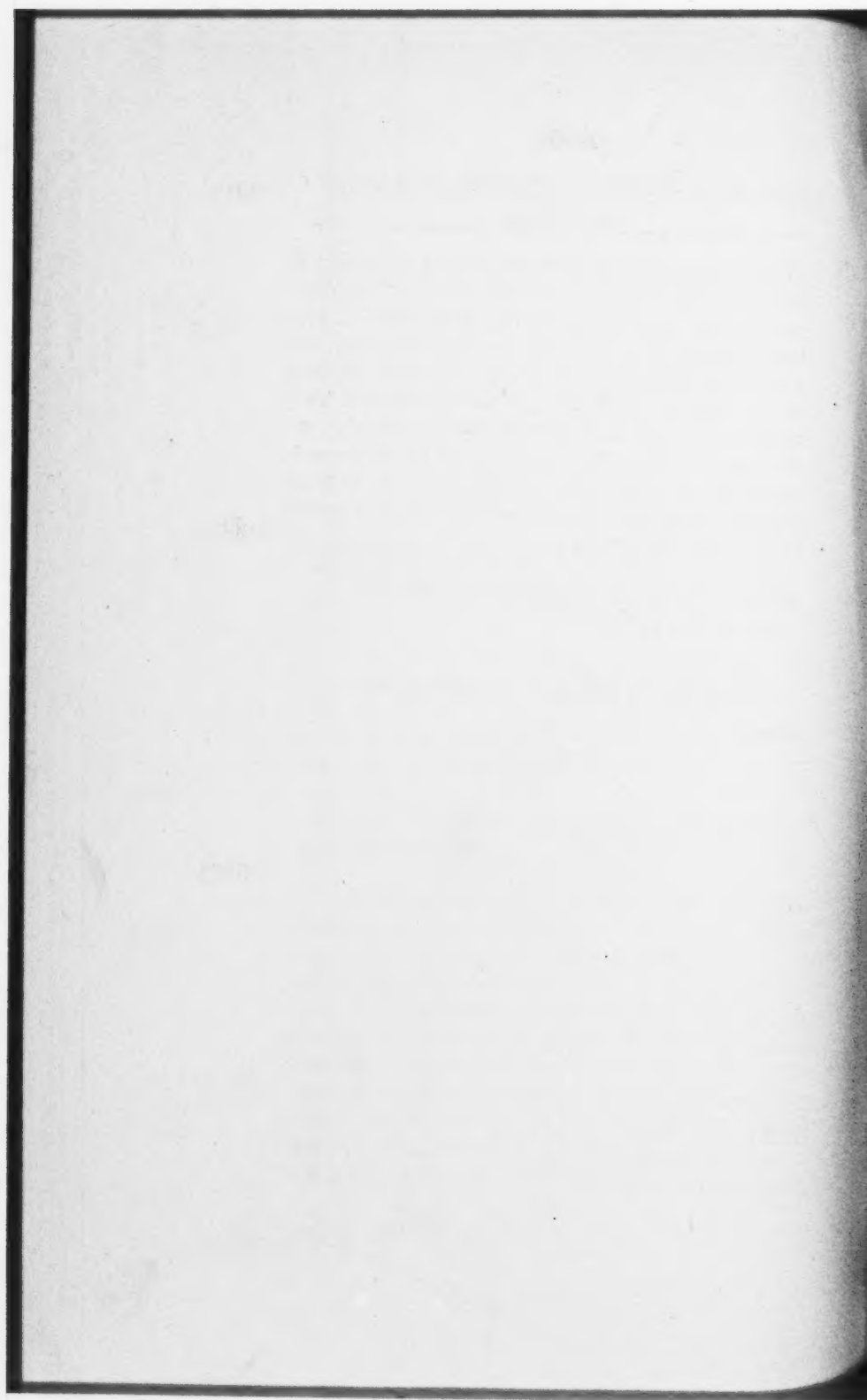
which were manufactured and sold by Charles E. Chinnock of Brooklyn or New York. These machines were well known to everyone connected with the business of exhibiting moving pictures, and were somewhat extensively sold and used, at least in the eastern part of the United States. They were advertised and pushed to considerable extent, and I believe that everyone of prominence in the business knew that such machines were being marketed and used, and these facts are still known to the trade generally.

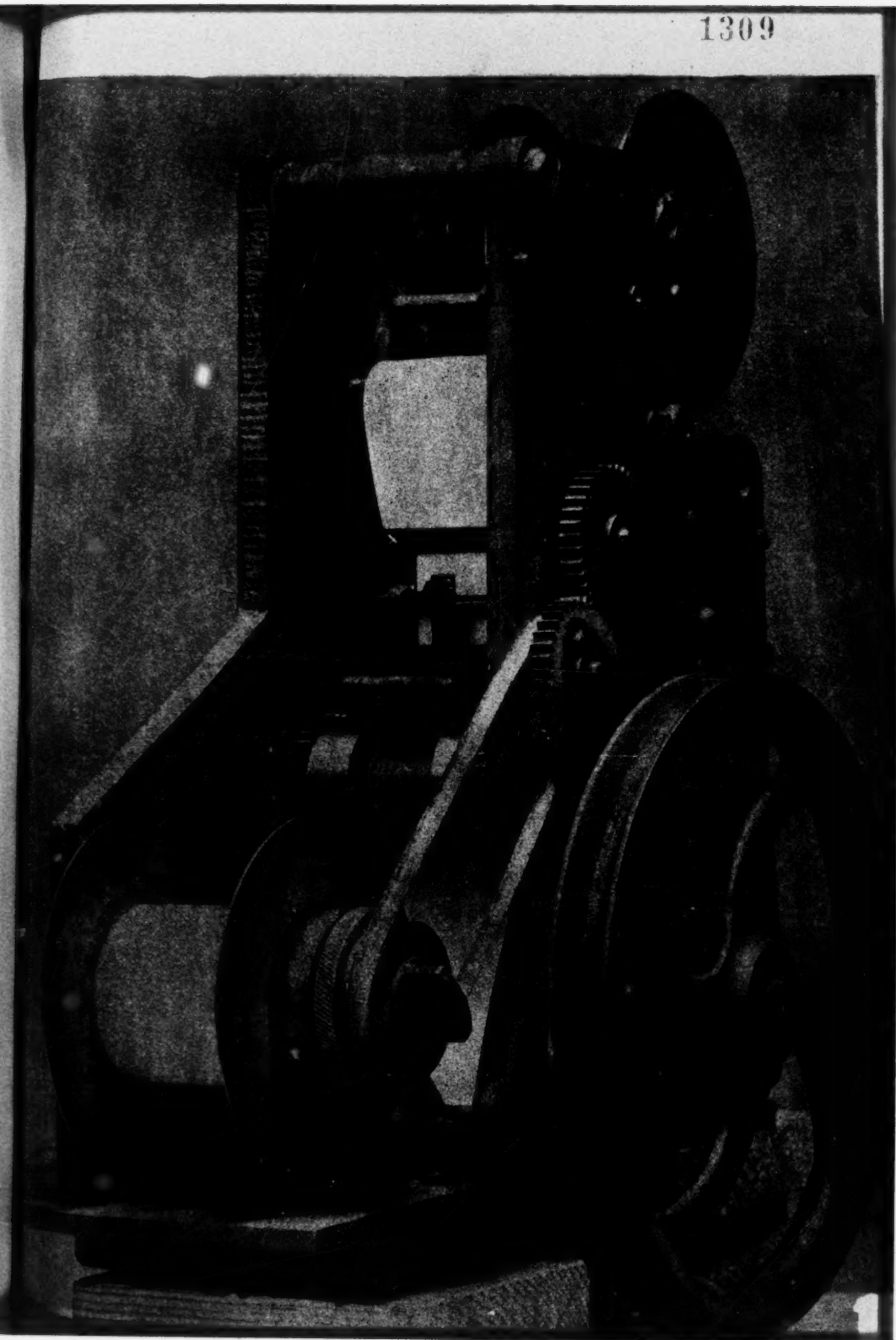
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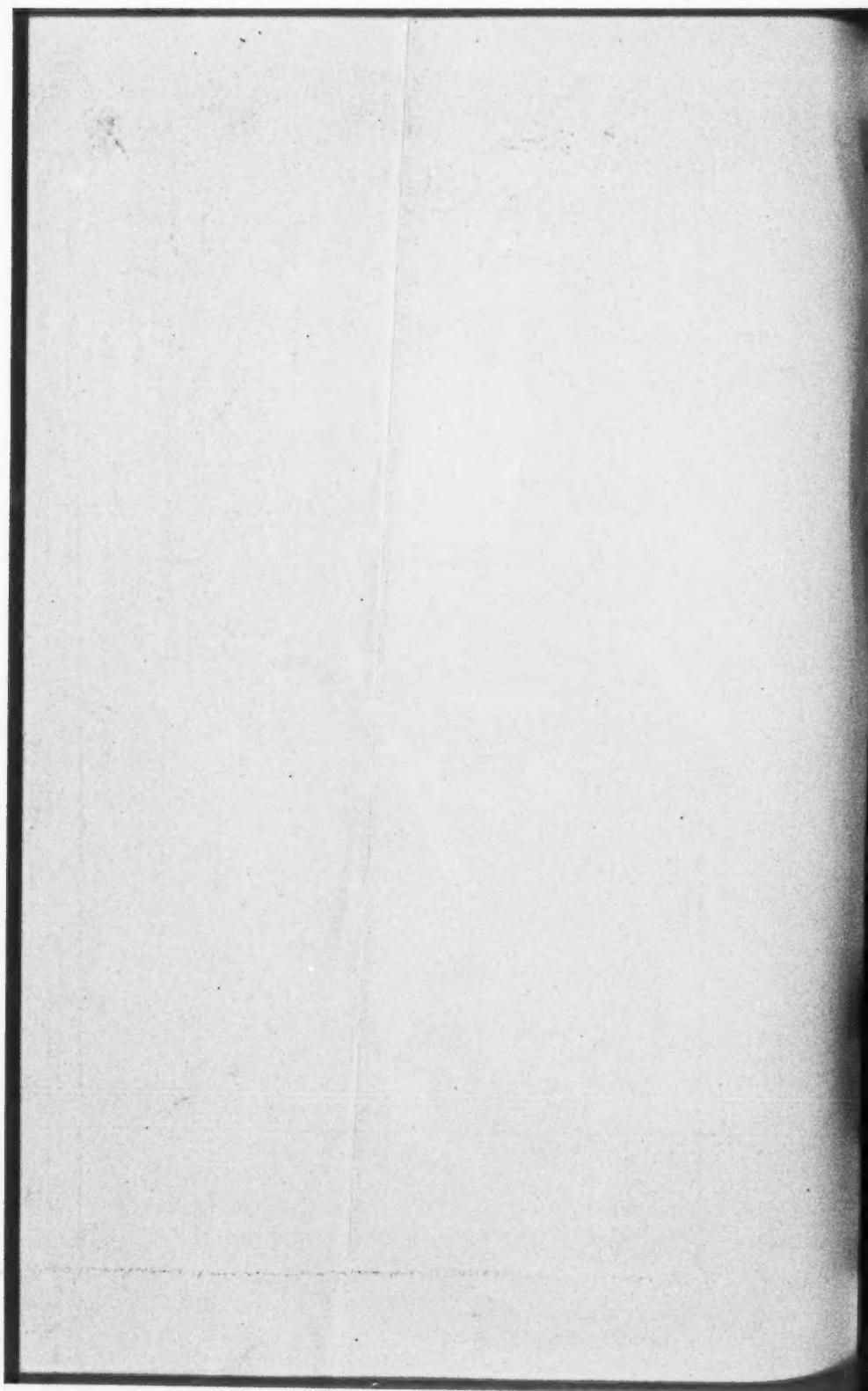
Subscribed and sworn to before me this 5th  
day of May, 1911.

M. LAWSON DYER,  
Notary Public 86,  
(Seal) N. Y. Co., N. Y.

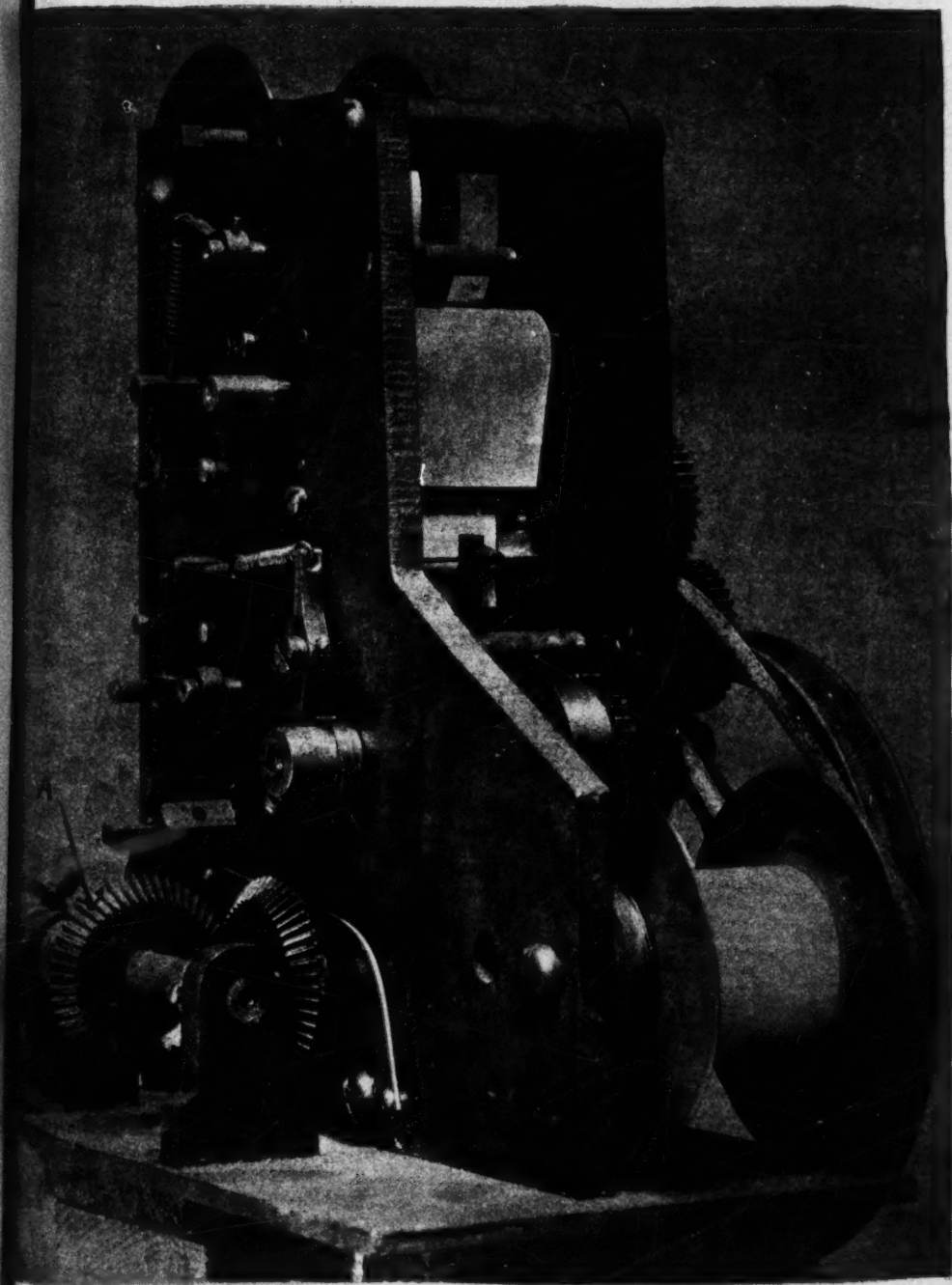
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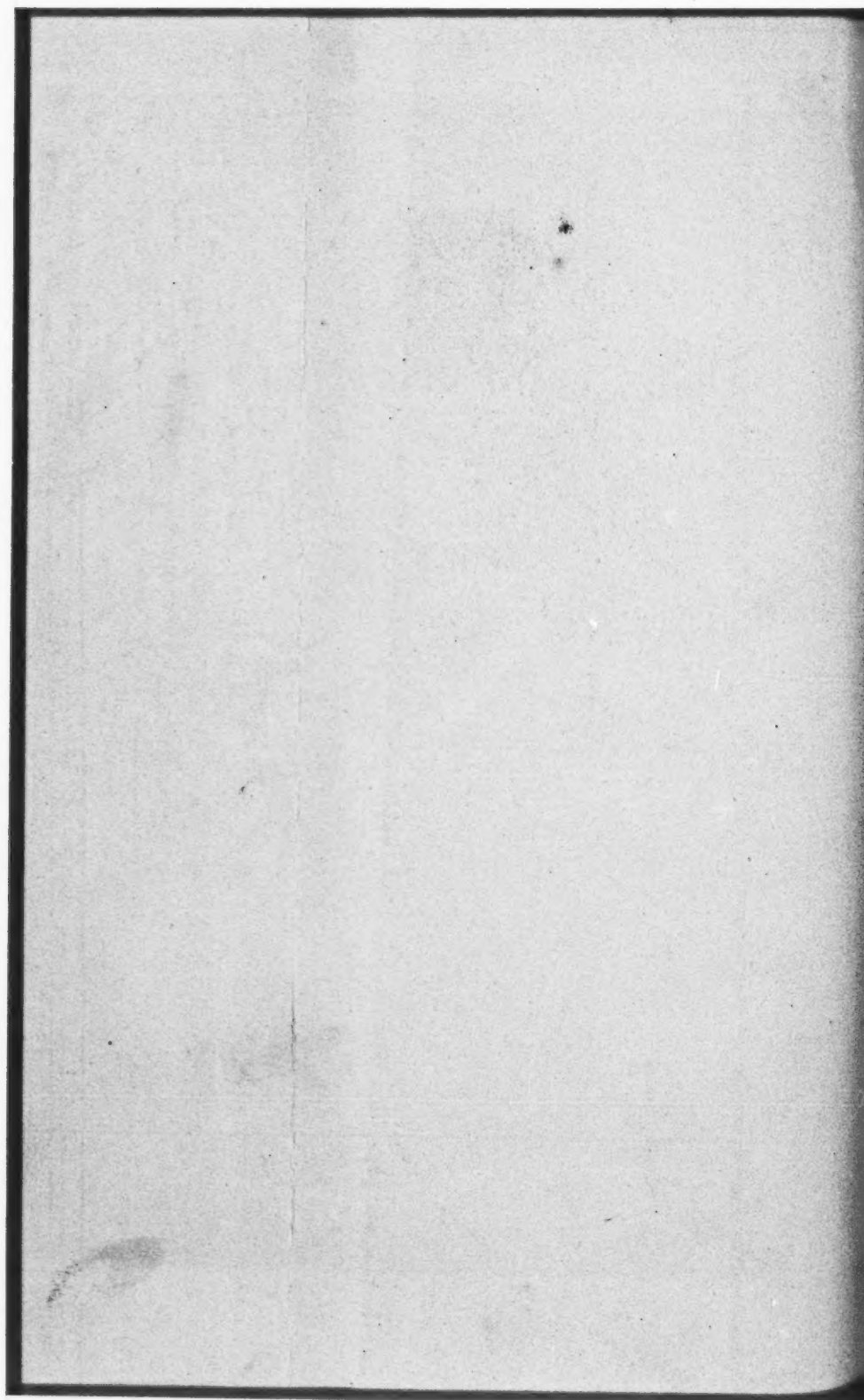


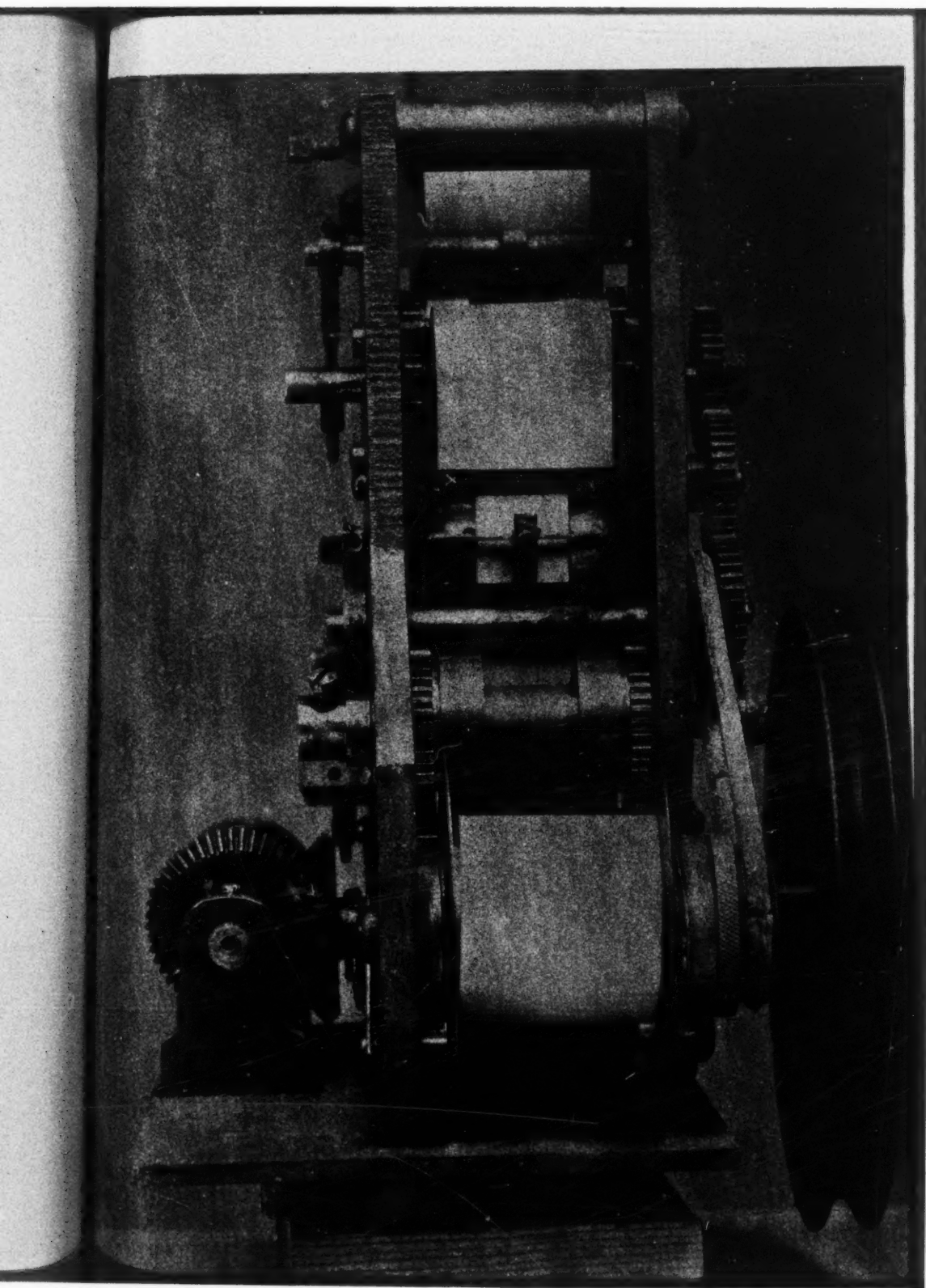


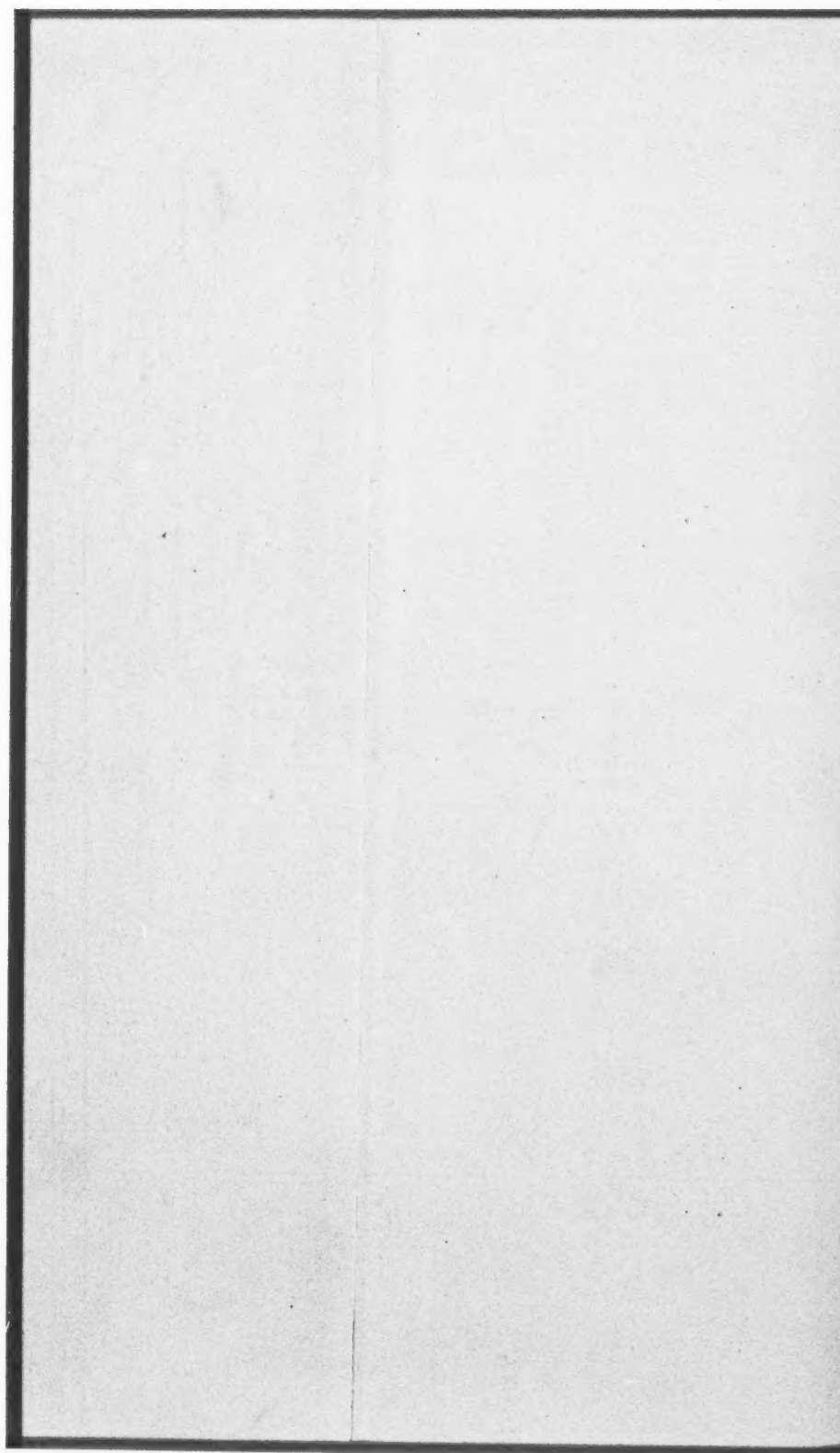


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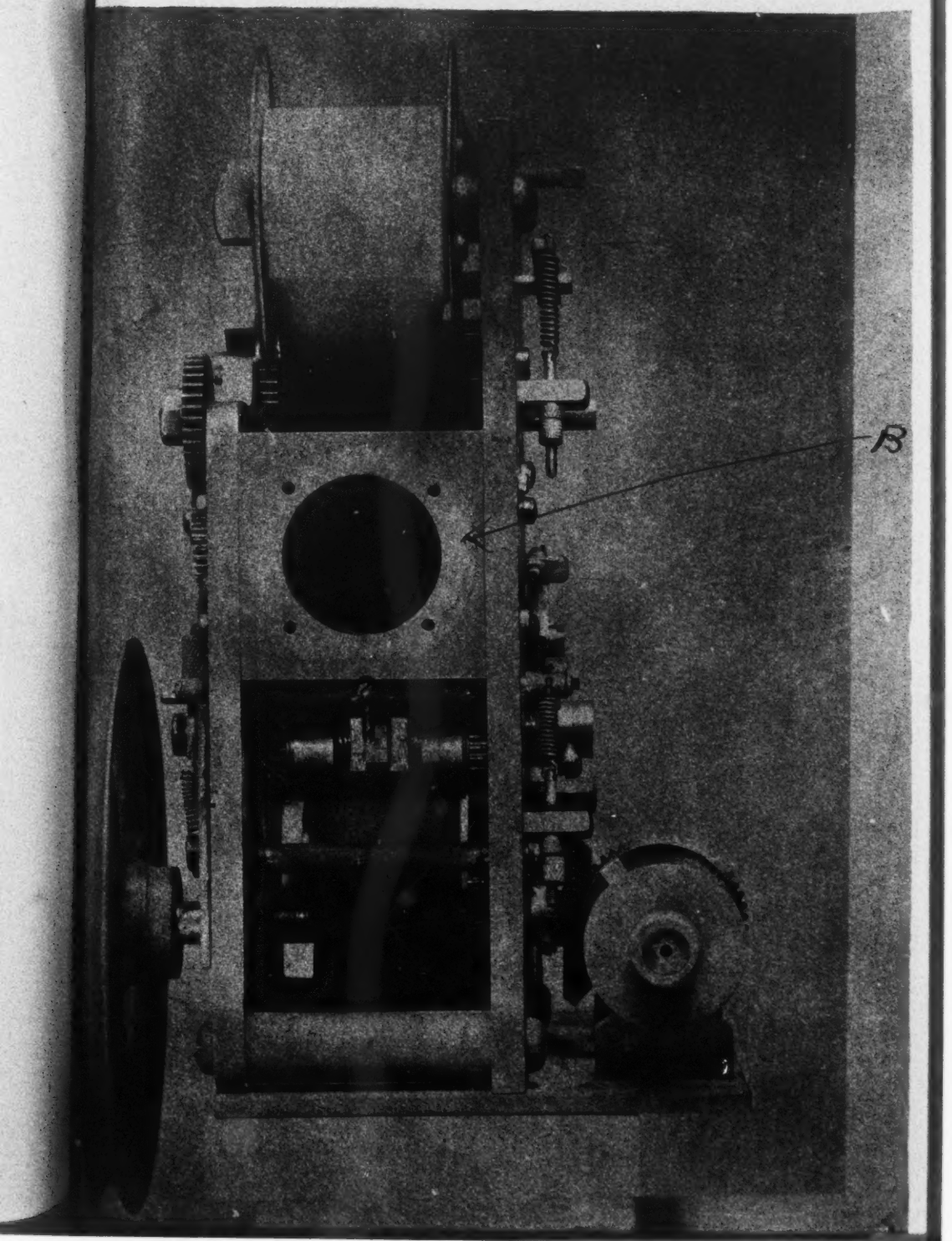


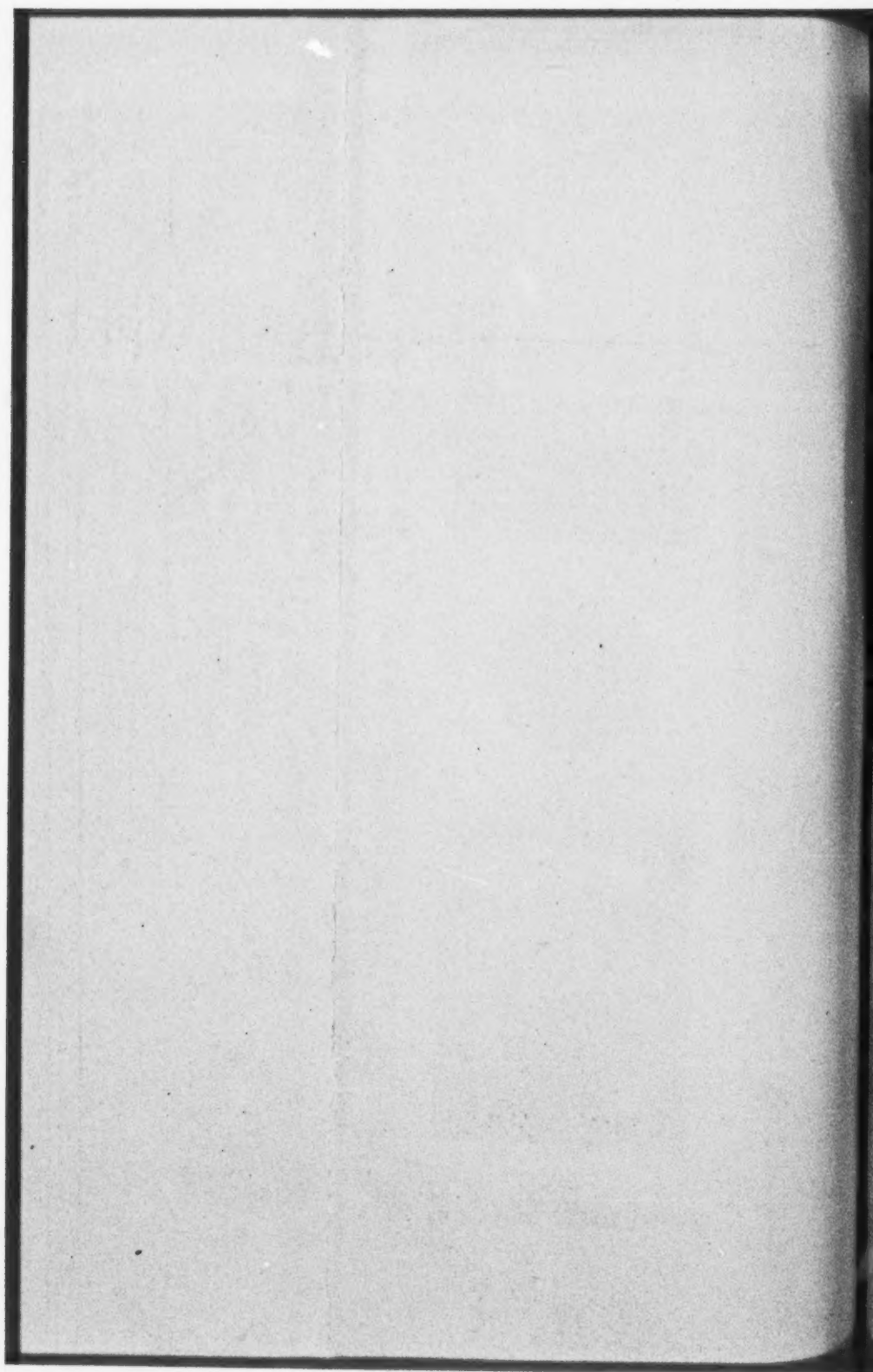




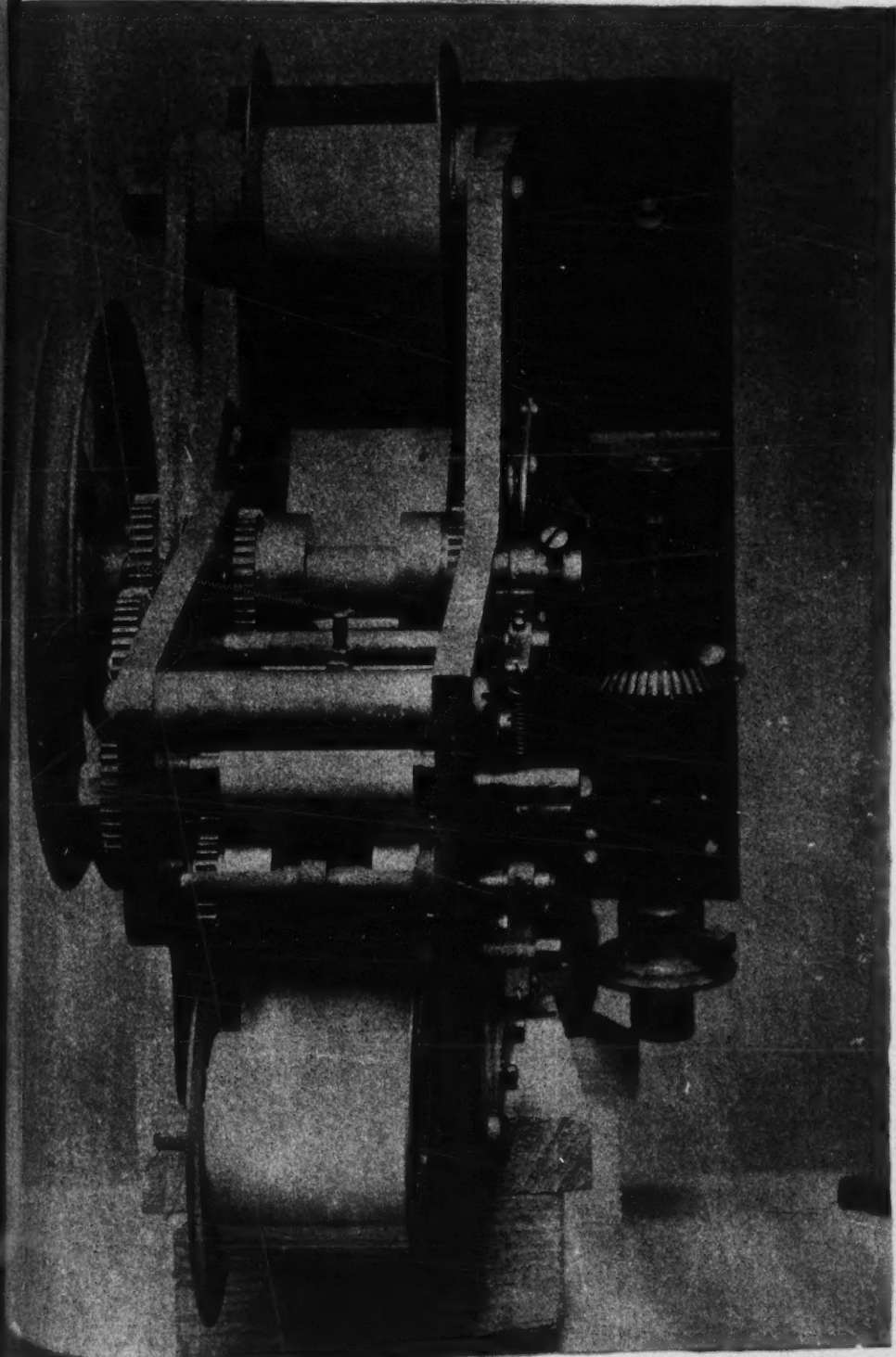


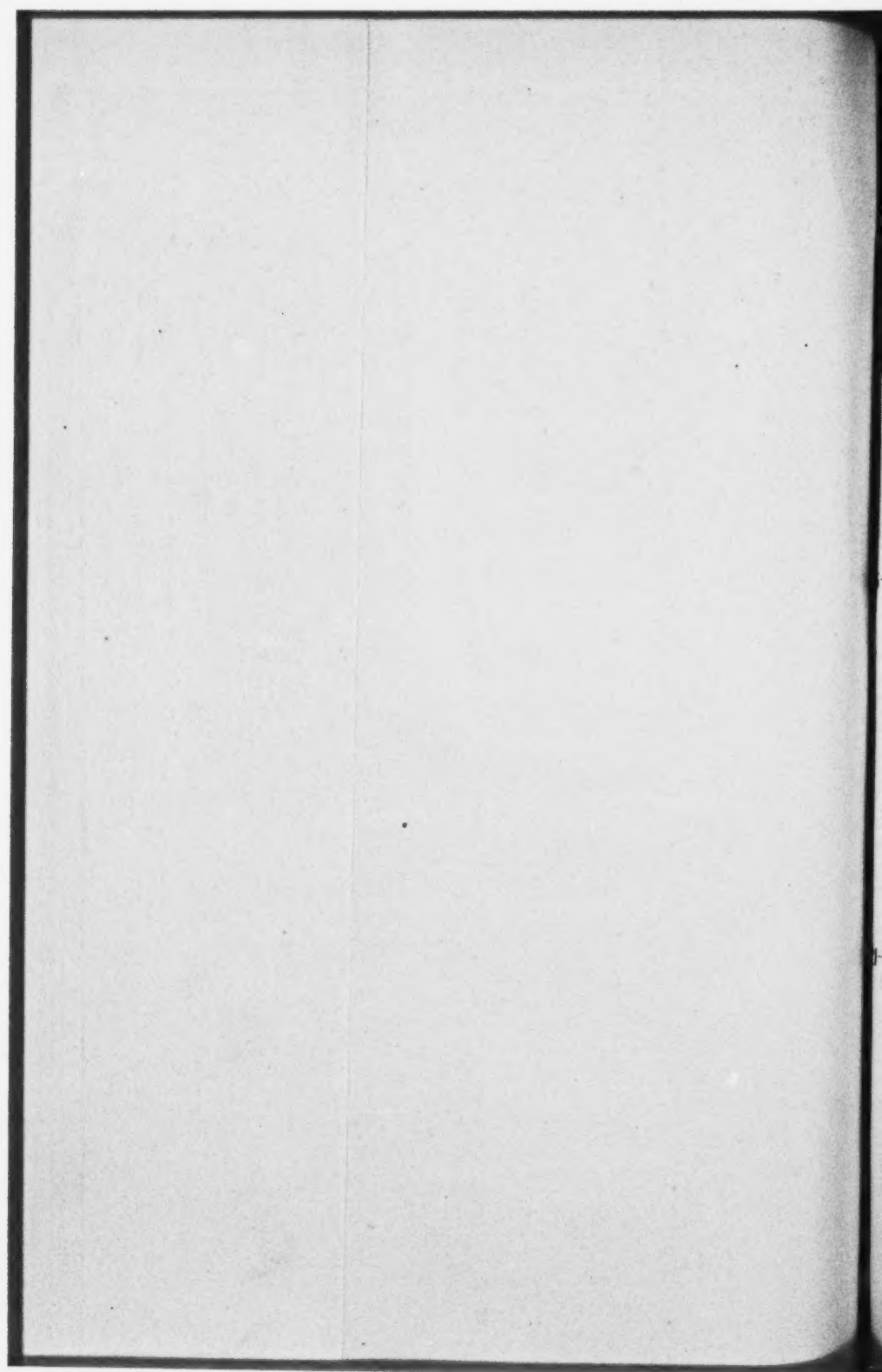
PHOTOGRAPH No. 4,  
CHINNOCK CAMERA.





CHIDNOCK CAMERA.





DEFENDANTS' EXHIBIT No. 43

Diagram of Chinnock Camera

1319

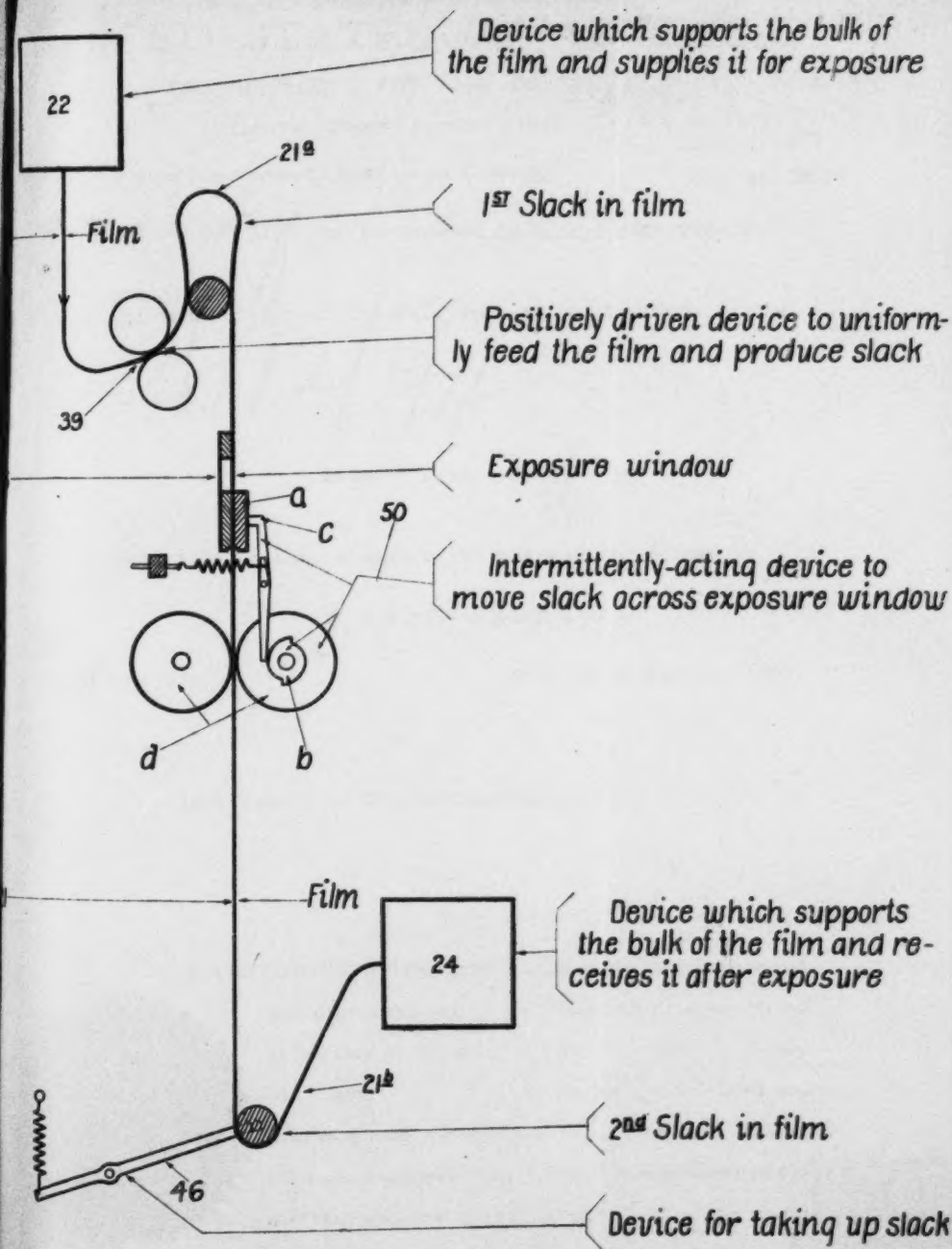


Diagram of Chinese ...

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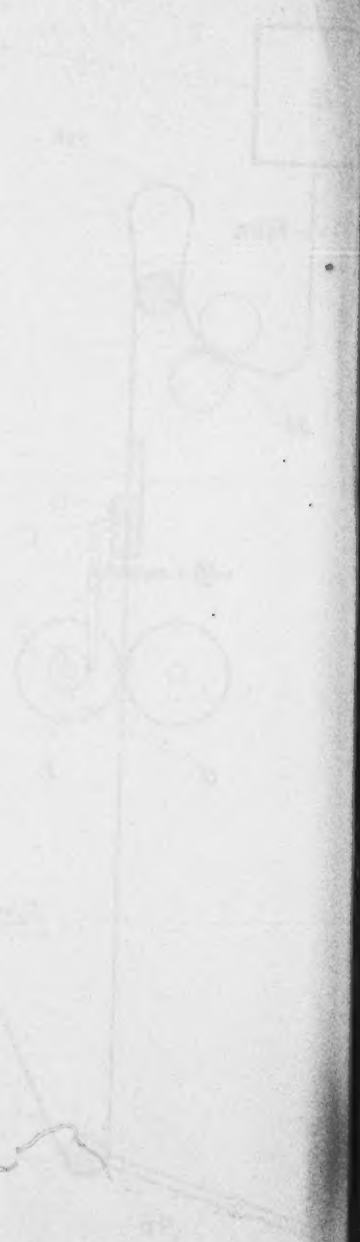
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DEFENDANTS' EXHIBIT No. 44 1221

UNITED STATES OF AMERICA,

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

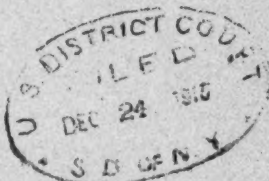
Ex. No. 44  
U. S. Dist. Court  
S. D. of N. Y.

To all to whom these presents shall come, Greeting:

DEC 23 1915

THIS IS TO CERTIFY that the annexed is a true copy from the  
Records of this Office of the File Wrapper and Contents in the  
matter of the

612/194  
Letters Patent of



Woodville Latham, Assignor, by mesne assignments, to

E. & H. T. Anthony & Co.,

Number 707,934,

Granted August 26, 1902,

for

Improvement in Projecting-Kinetoscopes.

IN TESTIMONY WHEREOF I have hereunto set my hand

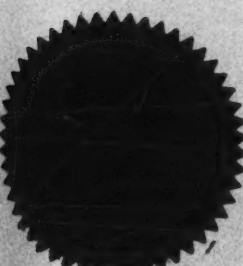
and caused the seal of the Patent Office to be affixed  
at the City of Washington, this 3rd day

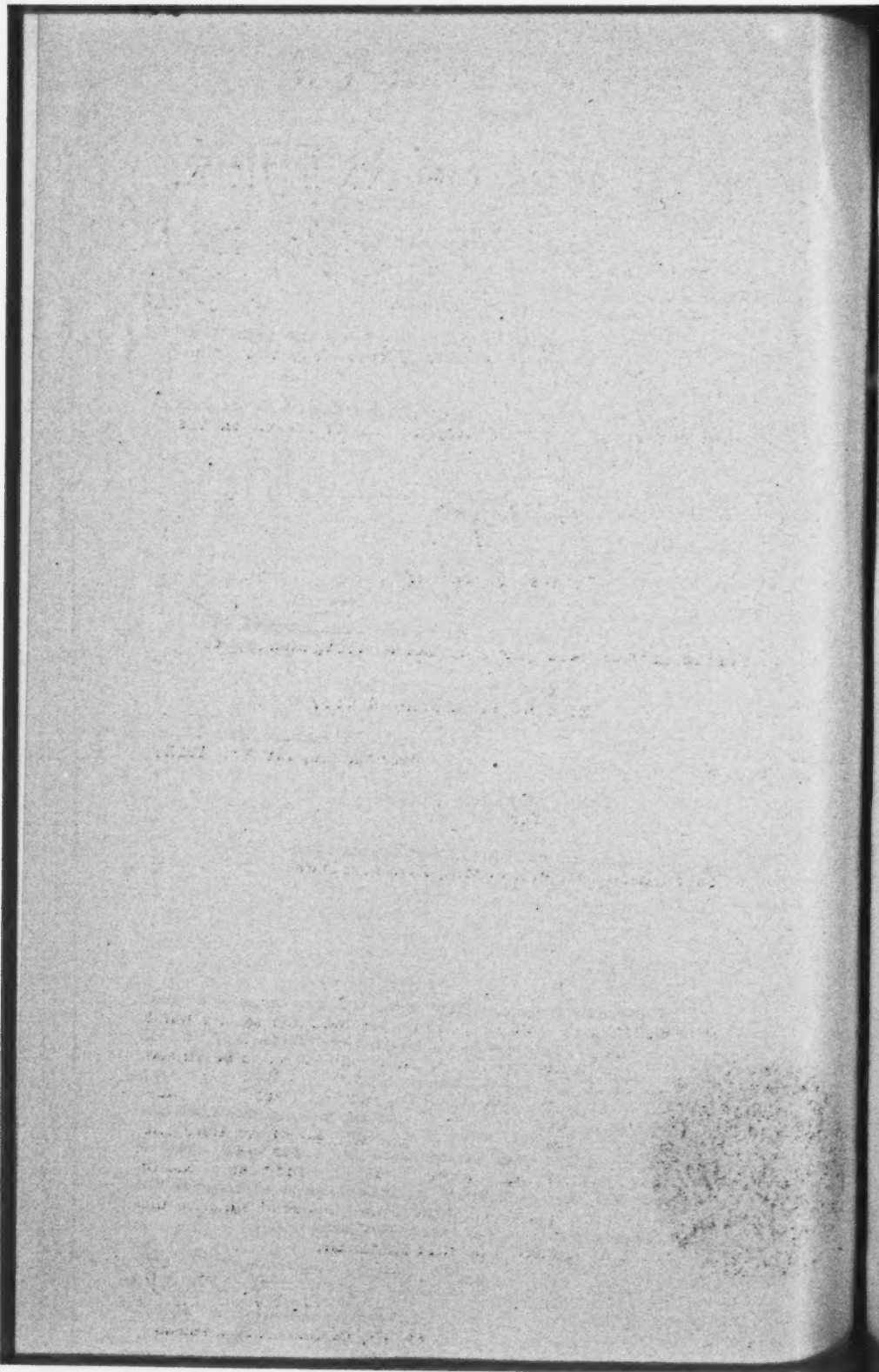
of May, in the year of our Lord one

thousand nine hundred and fifteen and of

the Independence of the United States of America the

one hundred and thirty-ninth.

  
J. G. Kingston  
Acting Commissioner of Patents.



(Serial Number,)

1896.

(Ex'r's Book,)

Div

51

102

593,747

Patent No. 707934

Woodville Latham, Assor. by mesne assgts. to

E. &amp; H. T. Anthony &amp; Co., (Corp. of N Y.) of same place.

Of New York

County of

State of New York

Invention Apparatus for Projecting on a screen Pictures of

Moving Objects-

Parts of application filed	Petition	June 1, 1896-
	Affidavit	" " "
	Specification	" " "
	Drawing 4 shts,	" " "
	Model none -	
	Specimen "	Prints Jan. 26/97
	First fee Cash \$15.	June 1. '96-
	" " Cert.	

App. filed complete June 1 96

-----000-----

Examined F. L. Pittman Aug 4, 1900.

Acting Exr

Countersigned: J W Babson  
For Commissioner.

Notice of allowance Aug. 6, 1902.

Final Fee Cash \$20 Aug. 7, 1902

" " Cert. , 190

Patented August 26, 1902

-----000-----

Associate Attorney Foster &amp; Freeman Attorney Phillips Abbott,

Asso. H. A. Seymour, 931 F Street, N.W., 205 Broadway

City Washington, D. C. New York City.

J. E. M. Bowen

J. E. M. Bowen

132 Nassau-St.

132 Nassau-St

New-York

New-York

W. C. Henderson City

1324

AMOUNT RECEIVED  
\$ 15 00  
CHIEF CLERK

Petition.

To the Commissioner of Patents:

Your Petitioner Woodville Latham, a citizen of the United States and a resident of New York, in the County and State of New York, prays that Letters-Patent of the United States may be granted to him for the invention or Improvements in Apparatus for Projecting on a screen Pictures of Moving Objects, set forth in the annexed specification; and I hereby appoint J. E. H. Brown, No. 132 Nassau Street, New York, and 501-P-Street, N.-W., City of Washington, District of Columbia, U.S.A. my Attorney, with full power of substitution and revocation, to prosecute this application to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Woodville Latham

Specification.

To all whom it may concern:

Be it known that I, Woodville Latham, a citizen of the United States and a resident of New York, in the County and State of New York, have invented certain new and useful Projecting Kinetoscope Improvements in ~~Apparatus for Projecting on a screen Pictures of Moving Objects~~, of which the following is a specification:-

The present invention has reference to apparatus  
Sub B' for projecting continuously on a screen, or other plane  
surface, many thousands of photographs of moving objects  
whereby the movement of the objects is accurately exhibited.

The purpose of the invention is to devise an apparatus capable of continuously projecting a great number of pictures of moving objects arranged in a strip or film of great length, whereby each picture in the strip is brought to rest at the moment of projection. In an apparatus organized so that the picture-bearing strip is caused to move continuously and uninterruptedly across the optical axis, a light of the highest intensity is necessary to give satisfactory results, but a light of the highest power is not required for satisfactory projection by means of an apparatus embodying the principle of the present invention. The stoppage of each picture during its exposure permits the requisite quantity of light to pass through the condenser, the picture and the objective to the screen or plane surface upon which the image is projected, when the light employed is only of a moderately high power.

My present invention accordingly consists of an apparatus for projecting continuously a great number of pictures of moving objects, embodying means for bringing each picture to rest at the moment of projection; means for reducing the strain the picture film would otherwise suffer from the rapid interruption of its movement, and means for maintaining uniformity of tension of the film, as it unwinds from the delivering reel, and as it winds upon the receiving reel, all as set forth in the claims at the end

of this specification.

In the accompanying drawings which form part of this description and wherein like features are designated in the several views by like numerals of reference, Figure 1 is a side elevation of an apparatus embodying my invention. Figure 2 is a cross section on the line 2, 2, of Figure 1, partly broken away. Figure 3 is a section on broken line 3, 3, of Figure 2, looking toward the machine. Figure 4 is a fragmentary section on line 4, 4, of Figure 2. Figure 5 is a similar section on the line 5, 5, of Figure 2. Figure 6 is a vertical section through the machine and showing the slack in the film, on the line 6, 6, of Figure 2. Figure 7 is a similar section showing the mechanism for pressing the film in contact with the guide rollers and drums, thrown out of action. Figure 8 is a sectional plan view on the line 8, 8, of figure 2; and Figure 9 is a section on the line 9, 9, of Figures 1 and 3 through the friction controlling appliances, showing the relation of the parts when winding back the film to the delivering reel.

The several parts of the apparatus are mounted upon an optical bench indicated in the drawings at 10 and of any convenient design. At the ends of the bench 10 are the brackets 11 furnishing supports for the pair of longitudinal rods 12 upon which are mounted the standards 13, 14, 15, said standards being bifurcated to connect with rods 12 in such manner as to be capable of longitudinal adjustment thereon.

The standard 13 supports a projecting lens or an ordinary objective 16 which may be readily adjusted to

bring it in proper relation to the pictures being projected, and standard 14 supports the condensing lens or lenses 17 while the standard 15 supports the lamp 18 which in this instance is shown as a focusing arc lamp. The lamp 18 is adjustable on its support both vertically and laterally, and the standards for the condensing lens and the lamp may be adjusted longitudinally on the rods 12 so as to obtain the proper relative relation between the lamp and the condenser and the condenser and picture strip.

The mechanism for supporting and propelling the shutter and the picture-bearing strip is arranged above and below the optical bench 10 on standards 19 which extend vertically above the bench and for a short distance beneath, and are braced by the brackets 20 which also furnish bearings for the longitudinal rods 12, as seen in figure 2.

The picture-bearing strip, which may be of any desired length without in any way affecting the operation of the machine, is indicated at 21 in the several views. It is wound upon the delivering reel 22 the shaft of which, 23, is journaled in the lower ends of the standards 19. The receiving reel 24 is similarly mounted at the top of standard 19 its shaft 25 having bearings in said standards and being extended at one side beyond the standard to receive pulley 26 for the belt 30<sup>a</sup> transmitting the motion of the driving shaft to the receiving reel. The picture-bearing strip 21 is conducted through and over its guiding and controlling mechanism mounted in standards 19, and secured to the hub of reel 24, the said strip when in the position it is caused to assume when the apparatus is projecting having two slack sections contiguous to the feed

7

drum for the purpose presently explained.

To one side of standards 19 there is fixed the bracket 27 in which the main shaft 28 is mounted in bearings 28<sup>a</sup>. At one end of this shaft 28 there is keyed a pulley 29 to receive the driving belt 30 and at its opposite end is fixed the hub of the shutter 31. On main shaft 28 is keyed the bevel gear 32 which meshes with bevel gear 33 fixed to the end of shaft 34 which revolves in bearings 34<sup>a</sup> in bracket 27 and adjacent standard 19; the revolution of the shaft 28 being thereby transmitted to shaft 34. The shaft 34 has keyed to it pulley 35 which receives the belt 30<sup>a</sup> transmitting motion to the receiving reel, and it has also keyed to it the small gear wheel 36 which engages with the large gear wheel 37 keyed to shaft 38 having bearings in bracket 27 as well as in standards 19, said shaft carrying the toothed drum 39 and having keyed to its outer end bevel gear 40 which meshes with bevel gear 41 fixed to the upright shaft 42 supported in brackets 42<sup>a</sup> on standard 19, and having at its upper end bevel gear 43 which meshes with a like gear 44 on the end of shaft 45 which carries toothed drum 46 and has bearings in standards 19. By this mechanism the toothed drums 39 and 46 are caused to revolve continuously at a uniform rate when power is communicated to main shaft 28. It is obvious that other forms of gearing may be employed to drive said toothed drums 39 and 46 in unison from shaft 34.

Shaft 34 has also keyed to it broken gear 47 (figure 5) which is adapted to engage with broken gear 48 fixed to shaft 49 having bearings in standards 19 and carrying

toothed drum 50. The gear 48 on the shaft of drum 50 is provided with a series of four toothed sections and a series of four plain sections the surfaces of the latter being made to conform to the toothless portion of the circumference of the broken gear 47, so that while the gear 47 revolves continuously it intermeshes with gear 48 only momentarily as it completes each revolution, moving the gear 48 intermittently and thus producing momentary stoppage of the drum 50 once with each complete revolution of shaft 34. At the moment of stoppage of the drum 50 the smooth surfaces of the gears are in sliding contact and remain so until the shaft 34 completing another revolution the teeth of the two gears again intermesh revolving the drum 50 one fourth of a revolution and so on continuously said drum momentarily stopping as the picture-bearing strip is moved through the apparatus the length of one picture, thus bringing each picture to rest at the moment of projection.

To prevent any vibration of the picture at the moment of projection the smooth surfaces of the broken gears 47 and 48 should be held in close sliding contact and with this end in view the bearings 34<sup>a</sup>, 34<sup>b</sup>, (see figures 4, 5, and 8) of the shaft 34 are made eccentric so that by means of the adjusting screws 51, 51, passing through lugs 52 on bracket 27 and bearing at their points on opposite sides of the yoke 53 connected to or formed with said bearings, the shaft 34 may be slightly raised or lowered as required. This mode of adjustment has been found in practice to be efficient and to satisfactorily answer the purpose intended.

By the rapid interruption of the movement of the picture film it is necessary to provide means for reducing the strain on the same to prevent its being ruptured, and it is also necessary to provide means for maintaining uniformity of tension of the film as it unwinds from the delivering reel and winds upon the receiving reel. The manner whereby I effect these objects will now be described.

The numerals 54, 55 and 56 indicate rollers for supporting and guiding the picture-bearing strip 21 and are arranged to freely revolve on fixed shafts supported in the standards 19. The picture-bearing strip 21 which comprises a series of pictures representing the successive stages or positions of the moving object or objects to be reproduced, and which consists of material commonly used in the better class of kodaks, is conducted from the delivering reel 22 over guide roller 54, toothed drum 39, guide roller 55, past window 56 attached to the standards 19 in the line of the optical axis of the apparatus, toothed drums 50 and 46 and guide roller 56 to the receiving reel 24 to the hub of which its end is secured. The strip 21 is perforated at regular intervals along its lateral edges to correspond exactly with the teeth arranged on the circumferences of the drums 39, 46 and 50 near their ends.

In figure 6 the parts of the mechanism controlling and guiding the picture-bearing strip, as well as the picture-bearing strip, are in position for projecting, and in figure 7 the parts are shown in the position they are made to assume when the picture-bearing strip is being wound back from the receiving to the delivering reel.

To secure the necessary co-operation between the picture-bearing strip 21 and the feeding drums 39, 46 and 50 is the purpose of the frames 57 and 58 pivoted as shown to the standards 19 and provided with the freely revolving rollers 57<sup>a</sup> and 58<sup>a</sup>. The rollers 58<sup>a</sup> carried by frame 58 and adapted to co-operate with the toothed drums 46 and 50, and provided circumferentially near their ends with grooves as shown in figure 2 to receive the teeth or sprockets of said feed drums when the frame is fixed in the position it occupies when the apparatus is projecting; and the rollers 57<sup>a</sup> of frame 57 which co-operate with toothed drum 39 are similarly constructed for the same reason, the upper roller 57<sup>a</sup> coacting with guide roller 55 being grooveless on its circumference. The frames 57, 58 are held in the two positions which they are adapted to occupy--as in figure 6 when projecting or as in figure 7 when the picture-bearing strip is released so as to be wound back from the upper to the lower reel -- by the removable rods 59 passing through suitable holes in standards 19, as shown in figures 6 and 7. When in the position shown in figure 6 the rollers carried by frame 57 are between toothed drum 39 and guide roller 55, while the rollers carried by frame 58 are between the toothed drums 46 and 50. Within the spaces occupied by the two sets of rollers 57<sup>a</sup> and 58<sup>a</sup>, when the apparatus is adjusted for projecting, the film or picture-bearing strip 21 is drawn out in the form of a loop as shown at 21<sup>a</sup>, 21<sup>b</sup>, one of these slack portions being below window 56 and the other above the same. The extent of each of said slack portions is that of the height of a picture, or slight

ly more, and in the operation of the apparatus the rollers 57<sup>a</sup>, 58<sup>a</sup> hold the strip in proper contact with the respective feed drums and guide roller 55 as will be understood from figure 6, and ensure proper contact between the strip and the respective feed drums.

The picture-bearing strip is carried through the apparatus with great rapidity and because of the rapid interruption of its movement it would not be possible for the strip to withstand the strain brought upon it if there were not provision made for the slacks in the film as just explained. The instant each picture of the strip is brought in the line of the optical axis the toothless surfaces of the broken gears 47, 48, mounted respectively on shafts 34 and 49 are in sliding contact with the effect of causing stoppage of revolution of the toothed drum 50 and consequent momentary stoppage of the film between said toothed drum 50 and the toothless roller 55 beneath the optical axis, and the revolution of shaft 34 being continuous the toothed drums 39 and 46, geared from said shaft as explained, also revolve continuously, taking up the slack 21<sup>b</sup> between toothed drums 46 and 50, and also replacing the slack 21<sup>a</sup> between toothed drum 39 and roller 55, thus restoring the slack 21<sup>a</sup> to be taken up when the broken gears 47, 48 again momentarily intermesh. It will thus be seen that as the slack 21<sup>b</sup> is taken up at the moment of stoppage of the toothed drum 50, the slack 21<sup>a</sup> is simultaneously being restored and this action is continuous while the operation of projecting is going on. There is therefore but little if any additional strain on the film incident to the rapid in-

interruption of its movement through the apparatus.

Uniformity of tension of the film as it unwinds from the delivering reel, to prevent the film from buckling and ensure its proper entrance to the apparatus, is secured by any suitable friction device applied to the shaft 23 of said reel. In the drawings is shown a metallic strap with an adjusting screw for this purpose. This friction device is indicated by 60.

The rate of winding of the picture-bearing strip upon the receiving reel is regulated by automatically controlling the revolution of the reel by means of the idler 61 which is shown loosely journaled on shaft 34. The idler is provided with a slot, as shown, in which is adjustably fixed roller 62 and around this roller is passed the belt 30<sup>a</sup>. By adjusting roller 62 in the slot the pressure on the belt is varied. As the reel 24 becomes larger by the winding of film thereon, the idler serves to loosen the belt 30<sup>a</sup> and to cause it to slip on pulley 26 of the reel shaft. This slipping is a continuous one from beginning to end of the operation of the machine, but it is such a gentle slipping that no appreciable heat is produced and no appreciable wearing of the belt. The outer end of the idler is screw-threaded and provided with weight 63 by means of which a nicer adjustment of the pressure exerted by the idler is obtained. By this means the rate of revolution of the receiving reel is automatically maintained in proper correspondence with that of the feed drum 46.

The shutter 31 carried by the shaft 34 has but a small solid section. Its use is to cover the film during the interval of movement of each picture, which in this

apparatus is never more than one hundredth of a second.

The power of the driving motor is imparted to main shaft 28 through the friction regulating and controlling appliance attached to the bottom of the optical bench by means of the bracket 64. In this bracket is journaled the shaft 65 carrying at one end a friction plate 66 and having keyed to its opposite end a pulley 67 adapted to receive the belt 30 which passes over pulley 29 on the main shaft 28. The friction plate 66 co-operates with a friction roller 68 keyed to shaft 69 the said shaft having a longitudinal groove 70 and being provided with pulley 71 receiving the belt 72 to the motor and also with pulley 73 adapted to receive belt 74 which is made use of to transmit the power of the motor to the delivering reel when winding back the film from the receiving reel, the shaft of said reel being provided with pulley 75 to receive said belt. The pulleys 71 and 73 are connected to shaft 69 by feathers entering the groove of said shaft, as shown in figure 9, so that while these pulleys cannot turn on the shaft the shaft can be moved through the hubs of the pulleys which is done when adjusting the friction roller 68 with relation to the friction plate 66. The hub of the friction roller is connected by an arm 76 having a screw-threaded sleeve through which passes screw-threaded shaft 77 supported in bracket 64 and adapted to be turned by crank 78 to permit the adjustment of the friction roller toward or from the centre of the friction plate to increase or diminish the rate of speed of the friction plate shaft 65 in a manner well understood, the rate of speed of the main shaft 28

connected to the friction plate shaft 65 through belt 30 being thus determined and regulated as desired. The pressure of the friction plate 66 against the friction roller 68 is regulated by means of the milled head screw 79 the point of which enters a depression in the end of the friction plate shaft, as shown in figure 3.

In figure 9 the friction speed regulating appliances are shown adjusted for winding back the film from the receiving to the delivering reel, the friction roller 68 having been shifted across the centre of the friction plate so as to reverse the revolution of the shaft 65. When winding back the film the pulleys 73 and 75 are connected by belt 74 and the frames 57, 58, are swung back as shown in figure 7 so as to relieve the film of all binding tension.

The reels may be of size suitable to carry any length of picture-bearing strip that may be desired.

In operating the apparatus, power is transmitted from the motor, not shown, by belt 72 and through friction plate shaft by belt 30 to main shaft 28 of the apparatus. the operation of the gearing and the manner in which the teeth of the feed drums engage the perforations in the edges of the picture-bearing strip and move it from the delivering to the receiving reel, and across the opening 56 in the line of the optical axis of the apparatus with a momentary stoppage of the film crossing the optical axis as the central portion of each picture is brought in the line of the optical axis, will all be understood from the preceding description. Whenever the central portion of a picture is in the line of the optical axis and the picture comes to rest, the

15

light will pass simultaneously through the condensing lens, through the picture and through the objective outward to the screen or other plane surface. The light, of course, must be so adjusted as to cover the whole of the picture. The pictures are projected successively with such great rapidity, each succeeding picture showing a slightly advanced stage of the motion, that the effect on the observer is exactly the same as if the moving object or objects were being looked at directly.

It is to be understood that many of the mere details of the apparatus herein described may be varied without departing from the principle of my invention, as for example while the mechanism shown and described for causing the picture-bearing strip to travel in such manner that there is a real stoppage of the film as each picture is presented in the line of the optical axis, is of the form and character preferred by me, it is obvious that the principle of the invention may be retained with differently organized gearing and the employment of the other appliances than those shown and described.

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Having thus described my invention, what I claim as new and desire to secure by letters patent, is:-

<sup>Insert A</sup> 28 1- In an apparatus for projecting on a screen, or other plane surface, pictures of moving objects, the combination with an objective, a condenser and a light, of a strip or film on which successive pictures of objects in motion have been photographed, and appliances for moving said strip or film and means for bringing each picture to a state of complete rest as it comes into line with the optical axis of the apparatus.

29 2- In an apparatus for projecting on a screen, or other plane surface, pictures of moving objects, the combination with an objective, a condenser and a light, of a strip or film on which successive pictures of objects in motion have been photographed, a delivering and a receiving reel for said strip or film, appliances for moving said strip or film between said reels and means for bringing each picture momentarily to rest as it comes into line with the optical axis of the apparatus.

30 3- In an apparatus for projecting on a screen, or other plane surface, pictures of moving objects, the combination with an objective, a condenser and a light, of a strip or film on which successive pictures of objects in motion have been photographed, a delivering and a receiving reel for said strip or film, appliances for moving said strip or film between said reels, means for maintaining a constant tension on the picture-bearing strip or film between the receiving reel and the feeding mechanism below, and means for bringing each picture momentarily to rest as it

comes into line with the optical axis of the apparatus.

<sup>a</sup>11 4. In an apparatus for projecting on a screen, or other plane surface, pictures of moving objects, the combination with an objective, a condenser and a light, of a strip or film on which successive pictures of objects in motion have been photographed, appliances, including feed drums, for moving said strip or film and for ensuring slacks in the film above and below the optical axis of the apparatus, and means for bringing each picture momentarily to rest as it comes into line with the optical axis of the apparatus.

<sup>a</sup>12 5. The combination with a perforated picture-bearing strip and feeding appliances therefor including a series of three toothed drums, of a driving shaft, gearing transmitting the motion of said shaft continuously to two of said drums, and broken gearing on the driving shaft and the shaft of the intermediately arranged drum whereby the motion of the driving shaft is transmitted intermittently to said intermediate drum.

<sup>a</sup>13 6. The combination with a perforated picture-bearing strip and feeding appliances therefor including a series of three toothed feed drums, of a driving shaft, gearing transmitting the motion of said shaft continuously to two of said drums, broken gearing whereby the motion of said shaft is transmitted intermittently to the remaining drum, and appliances for ensuring slacks in the film, above and below the intermediate drum whereby each picture is momentarily brought to rest as it comes into line with the optical axis of the apparatus and the slacks in the film

are alternately taken up and restored.

<sup>a</sup>14 7. The combination with the main shaft, two feed drums arranged one above and the other below the optical axis of the apparatus and gearing transmitting the continuous movement of said shaft to said drums, of a third feed drum with its shaft provided with a broken gear, and a broken gear on the main shaft co-operating with the broken gear on said drum shaft, whereby said drum is caused to stop momentarily with each revolution of the main shaft, substantially as set forth.

<sup>a</sup>15 8. The combination with the picture-bearing strip and its feeding mechanism comprising drums 39, 46 and 50 and roller 55, of adjustable frames as 57 and 58 provided each with a pair of rollers adapted to maintain said strip in proper operative relation to said feeding mechanism, substantially as set forth.

<sup>a</sup>16 9. The combination with the main shaft provided with broken gear 47 and mounted in eccentric bearings, as 34<sup>a</sup>, and feed drum, as 50, whose shaft is provided with broken gear, as 48, meshing with broken gear 47, of means for adjusting said bearings to regulate the contact between said gears, substantially as set forth.

<sup>a</sup>17 10. The combination with the supporting standards and the pivoted frames 57, 58, each provided with a pair of rollers, as 57<sup>a</sup>, 58<sup>a</sup>, of toothed drum 39 and roller 55, and toothed drums 46, 50, means for imparting continuous motion to drums 39 and 46 and intermittent motion to drum 50, and a picture-bearing strip perforated on its lateral edges, substantially as set forth.

Signed at New York, in the County and State of  
New York, this 25th day of May 1896.

Woodville Latham

Witnesses:

J E M Bowen

Alexis C. Smith

Oath.

State of New York, )  
                                  ) ss:  
City & County of New )  
                                  York )

Woodville Latham the above named petitioner a  
citizen of the United States and resident of New York,  
County and State of New York, being duly sworn (or affirmed)  
deposes and says that he verily believe himself to be the  
original, first, and sole inventor of the invention of  
Improvements in Apparatus for Projecting on a screen Pic-  
tures of Moving Objects, described and claimed in the fore-  
going specification; that the same has not been patented  
to him or to others with his knowledge or consent in any  
country, except that the same has not to his knowledge been  
in public use or on sale in the United States for more than  
two years prior to this application, and he does not know  
and does not believe that the same was ever known or used  
prior to his invention thereof.

Woodville Latham

Sworn to and subscribed before me, this twenty fifth  
day of May 1896.

(Notarial Seal) s.

Alexis C. Smith

NOTARY PUBLIC,

KINGS CO.

Certificate filed in N. Y. Co.

DEPARTMENT OF THE INTERIOR,  
United States Patent Office,

July 9, 1896.

Mailed " " "

Woodville Latham,

Care, J. E. M. Bowen,  
132 Nassau Street,  
New York, N. Y.

Serial No. 593,747, filed June 1, 1896, for Apparatus for Projecting on a Screen Pictures of Moving Objects.

Claims 1, 2, 3 and 4 are rejected on patent to Gray #540,545, June 4, 1895, (filed March 9, 1895) or on the Cinematographe of Lumiere described and illustrated in La Nature, Vol. XXIII. 11, page 215 (October, 1895.)

Claims 5, 6 and 7 are rejected on either of the references cited above. No invention lies in substituting for the intermittent motion of the band in either construction such a gearing as appears for the same purpose in patent to Bonnet et al., #399, 127, Mar. 5, 1889, (Coin Controlled Apparatus, Surface Exhibitor.)

Claim 9 is rejected on patent to Bonnet et al., cited. No invention is required to substitute for the rigid shaft bearing in this patent such adjustable bearing as appears in patent to Rodebaugh #490,453, June 24, 1889, (Saw Mill Sets)

The remaining claims appear to be allowable.

A.W.C.

Oscar Woodward

E

1342

## NO ASSIGNMENTS

Found of record affecting this appli-  
cation.

Examined up to and including

July 14, 1901-1896

This certificate dated

July 17, 1901-1896

F. V. Booth

Chief of Div. D.

22

DEPARTMENT OF THE INTERIOR,

*United States Patent Office,*

Washington, D. C., July 15, 1901-1896

To the

Chief of the Assignment Division:

You will please make a statement of what is shown in the  
"Assignment Records" relating to the condition of the title to the  
alleged invention involved in the application referred to in the  
paper hereto annexed. You will attach such statement to such  
annexed paper and transmit the same to the "Docket Clerk" on  
or before the \_\_\_\_\_ day of \_\_\_\_\_, 1901-189

John S. Seymour  
*J. S. Allen*  
23  
Commissioner of Patents.

New York, N.Y., July 13th, 1896.

The Commissioner of Patents,  
City of Washington, D. C.

1343

Sir:-

In the matter of my application for letters patent for  
Apparatus for Projecting on a screen pictures of Moving  
Objects, filed June 1st, 1896, No. 593,747 I hereby revoke  
power of attorney heretofore given to J.E.V. Bowen of  
New York, N.Y., and request all future communications to be  
addressed directly to me. This action reflects no discredit  
on Mr Bowen

Respectfully,

Woodville Latham

May I ask that receipt of this be acknowledged?

24

W. L.

"The Commissioner of Patents,  
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

Duplicate

*United States Patent Office,*

*Washington, D. C., July 18, 1896, 496189*

SIR:

You are hereby informed that YOUR POWER OF ATTORNEY HAS BEEN REVOKED  
in the matter of the application of Woodville Latham

for Letters Patent for an Improvement in Apparatus for Projecting on a  
screen Pictures of Moving Objects

No. 593,747 Filed June 1, 1896

Very respectfully,

*John S. Seymour*  
Commissioner.

J.E.V. Bowen,

132 Nassau St.,

N.Y. City, N.Y.



New York, N.Y., Dec. 18th, 1896.

The Commissioner of Patents,  
Washington, D. C.

Sir:-

In the matter of the application of Woodville Lathan for letters patent for Apparatus for projecting on a screen pictures of moving objects, filed June 1st, 1896, No. 593,747, of which application and the invention covered thereby we are now the sole and exclusive owners by assignment duly recorded at the United States Patent Office, we hereby appoint J. E. M. Bowen of No. 132 Nassau Street, New York, N. Y., our attorney to prosecute said application, to amend the same and to receive the patent with full power of substitution and revocation.

Respectfully,

E & H T Anthony & Co

by R. A. Anthony

President

(NOTARIAL SEAL)

1346

All communications should be addressed to  
"The Commissioner of Patents,  
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

*United States Patent Office,*

Washington, D. C., Dec. 24, 1896, 190189

SIR:

You are hereby informed that YOUR POWER OF ATTORNEY HAS BEEN ACCEPTED  
in the matter of the application of Woodville Latham

for Letters Patent for an Improvement in Apparatus for Projecting on a  
screen Pictures of Moving Objects

No. 593,747 Filed June 1, 1896

Very respectfully,

*John S. Seymour*  
Commissioner of Patents.

J. E. M. Bowen,

132 Nassau St.,

N.Y. City, N.Y.

## UNITED STATES PATENT OFFICE.

WASHINGTON, D. C.

28  
1897

EX'R OF INTERFERENCES.

Woodville Latham,

Jan. 23rd 1897

Care J.E.M. Bowen,

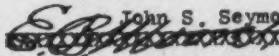
Interference No. 18,461

132 Nassau St. New York City.

Please find below a copy of a communication from the Examiner concerning your application for Apparatus for Projecting On a Screen Pictures of Moving Objects, filed June 1, 1896, Serial No. 593,747.

Very respectfully,

Room No. 95

ADDRESS ONLY  
THE COMMISSIONER OF PATENTS,  
WASHINGTON, D. C.
  
John S. Seymour  
Commissioner of Patents.

Your case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be <sup>1897</sup> filed up and filed on or before the 18<sup>th</sup> day of Feb'y, 1897, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

In a picture exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film.

Embraced in your claim 10, in-claims 1, 2 and 3 of Armat, claim 5 Casler and claim 9 of Amet, respectively.

The other parties are:

Thomas Armat, of Washington, D.C., whose Attorneys are Butterworth & Dowell, of Washington, D.C.

Herman Casler, of Canastota, New York, whose attorneys are E.M. Marble & Sons, 263 Broadway, New York, N.Y.

Edward H. Amet, of Chicago, Illinois, whose attorneys are Funday, Evarts & Adcock, 906 Marquette Building, Chicago, Illinois.

The case will be held for revision after final award of priority.

1348

New York, N.Y., December 1st, 1899.

The Commissioner of Patents,  
Washington, D.C.

Sir:-

In the matter of the application of Woodville Latham  
(E. & H. T. Anthony & Company of New York, Sole Assignees),  
for Improvements in Apparatus for Projecting on a Screen  
Pictures of moving Objects, filed May 7th, 1896, Sr. No.  
593,747, I hereby appoint Mr. William G. Henderson of  
501 F. Street, N.W., Washington, D.C., as my associate with  
the usual powers, and I hereby revoke all other associate  
powers of attorney heretofore given in this case.

Respectfully,

J2

J E M Bowen

Attorney for E. & H.T. Anthony &  
Company Assignees.

J E M B  
Dec-1, 1899.  
25....Contd.

Ser - 593747

2-402.

further  
NO ASSIGNMENTS

Found of record affecting this appli-  
cation.

Examined up to and including

Jan. 8 1899 1900

This certificate dated

Jan 13 1900

F.V. Booth.

Chief of Div. D.

DEPARTMENT OF THE INTERIOR,

1349

*United States Patent Office,*

*Washington, D. C.,* Jan'y 12, 1880

To the

Chief of the Assignment Division:

*You will please make a statement of what is shown in the "Assignment Records" relating to the condition of the title to the alleged invention involved in the application referred to in the paper hereto annexed. You will attach such statement to such annexed paper and transmit the same to the "Docket Clerk" on or before the \_\_\_\_\_ day of \_\_\_\_\_, 1900.*

  
C. E. Bull  
34 Commissioner of Patents.

115 Broadway .  
New York, N. Y., January 10, 1900.

The Commissioner of Patents,  
City of Washington, D. C.

Sir:-

In the matter of my application for letters patent for Apparatus for Projecting on a screen pictures of Moving Objects, filed June 1st, 1896, No. 693,747, I hereby revoke power of attorney heretofore given to J. E. M. Bowen of New York, N. Y., and request all future communications to be addressed directly to me.

3A Respectfully,

Woodville Latham

1350

Washington, D. C., Jan. 15th, 1900.

In the Matter of the  
Application of  
Woodville Latham,  
Apparatus for Projecting  
on a Screen Pictures of  
Moving Objects,  
Filed June 1, 1896,  
Ser. No. 593,747.

Revocation of Power of Attorney.

Sir:

Please find enclosed herewith the revocation of the power of attorney to J. E.M. Bowen, for the purpose of having the concurrence of the assignee, E. & H. T. Anthony & Co., in the execution of the same.

By direction of the Commissioner,

Very respectfully,

E. V. Shepard

Chief Clerk.

JMF

Woodville Latham,  
#115 Broadway,  
New York, N. Y.

Commissioner of Patents,  
Washington, D. C.

Sir:-

I hereby appoint H. A. SEYMOUR, Esq. of Washington, D. C., as my associate in the matter of the Application of WOODVILLE LATHAM for Letters Patent for apparatus for projecting on a screen pictures of moving objects, filed June 1st, 1896, Serial No. 593,747, with the usual powers; and I hereby revoke all other associate powers of Attorney heretofore given.

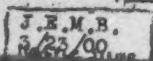
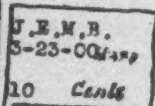
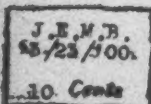
J E M Bowen

Attorney for W. Latham  
27

Dated

New York,

Feb. 22, 1900.



Room 217.

In re application of

Woodville Latham

Projecting on a Screen Pictures  
of Moving Objects.

Filed June 1st, 1896

No. 593,747.

Hon. Commissioner of Patents,

Sir:-

Add the following claims:-

A' 1st. The combination with a flexible strip or film of two  
feeding mechanisms, one of which is constructed to move the  
Sub B film intermittently and cause its intervals of rest to ex-  
ceed its intervals of motion, while the other feeds the film  
continuously and provides slack film, substantially as set  
forth.

2nd. The combination with a flexible strip or film of two  
feeding mechanisms one of which feeds the film intermit-  
tingly through the frame in which it is guided and exposed,  
and causes its interval of rest to exceed its interval of  
motion, while the other feeds the film continuously and pro-  
vides the intermitting feeding mechanism with a constant  
supply of slack film, substantially as set forth.

3rd. The combination with a flexible strip or film and two  
rotary feeding rollers, of mechanism for imparting an inter-  
mitting feeding action to one of the feeding rollers and  
3f

cause it to feed the film intermittingly and in such manner that its interval of pause will exceed its interval of motion, and mechanism for imparting a continuous feeding action to the other feeding roller and cause it to furnish a constant supply of slack film to the intermittingly acting feeding roller, substantially as set forth.

4th. The combination with a flexible strip or film provided with a series of holes of two rotary feeding mechanisms each of which is provided with teeth for engaging the holes in the film, one feeding mechanism being constructed to feed the film intermittingly and cause its interval of rest to exceed its interval of motion, and the other being constructed to feed the film continuously and provide a constant supply of slack film, substantially as set forth.

5th. The combination with a flexible strip or film of two rotary feeding mechanisms, one being constructed to feed the film intermittingly and cause its interval of rest to exceed its interval of motion the other being constructed to feed the film continuously and provide a constant supply of slack film, and gearing connecting the two feeding mechanisms for maintaining a fixed relation between them, substantially as set forth.

6th. The combination with a flexible strip or film of two rotary feeding mechanisms, one being constructed to feed the film intermittingly and cause its interval of rest to exceed its interval of motion, and the other being constructed to

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feed the film continuously and provide a constantly supply of slack film, a drum for taking up the film and gearing connecting the two feeding mechanisms and take up drum and adapted to maintain a fixed relation between them, substantially as set forth.

7th. The combination with a flexible strip or film provided with a series of holes, and two rotary feeding rollers each provided with teeth for engaging the holes in the film, of actuating mechanism and connecting gearing, for actuating one of the feeding rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion and for operating the other feeding roller continuously and providing a constant supply of slack film, substantially as set forth.

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Change the numerals of the remaining claims.

Respectfully,

H A Seymour.

Associate Attorney.

1354

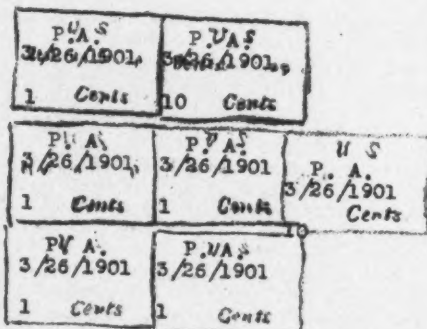
New York, March 26th 1901.

Hon. Commissioner of Patents:

Sir:

I hereby constitute and appoint HENRY A. SKYMOU  
ESQ., of Washington, D. C., my associate attorney in the matter  
of the application of Woodville Latham, filed June 1st, 1896 and  
numbered 593,747.

" Phillips Abbott



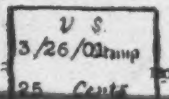
TO THE COMMISSIONER OF PATENTS:

The undersigned assignee of the entire interest in the  
application made by Woodville Latham on June 1st, 1896, serial  
No. 593,747, for an Improvement in Projecting on a Screen Pictures  
of Moving Objects, hereby revokes all former powers of attorney  
and appoints PHILLIPS ABBOTT, ESQ., of 206 Broadway, New York City,  
New York, their attorney, with full power of substitution and re-  
vocation, to prosecute said application, to make alterations and  
amendments therein, to receive the patent and to transact all  
business in the Patent Office connected therewith.

Signed at New York, in the County of New York, State of  
New York, this 26th day of March, 1901.

v2

E & H. T. Anthony Co  
by T A Anthony  
Secy & Treasr



C/o H. A. Seymour,

913-F St.,

MAILED

Washington, D. C.

Please find below a communication from the EXAMINER in charge of your application

593,747, filed June 1, 1896, Apparatus for Projecting on a screen  
Pictures of Moving Objects.

 P. I. Allen.  
Commissioner of Patents

Claims 1, 2, 3, 4, 5, 6, and 7, are rejected on the following  
patents-

Mayer, 525,991, September 11, 1894, Photography, Kinetographic,  
Cameras;  
Green & Evans, English, 10,131, June 21, 1899, Optics,  
Kinetoscopes.

It is observed that in claims 4 and 7, the feeding mechanisms  
or feeding rollers are characterized by having teeth for  
engaging the holes in the film. The addition of this means  
for positively engaging the film to the combination of Greene &  
Evans, or Mayer, is not invention in view of the fact that the  
same means had been commonly employed in this class of devices  
prior to the applicant's use thereof. See for instance, La  
Prince, 376,247, January 10, 1888; Optics, Kinetoscopes.

Claims 8, 9, and 10, are rejected on Jenkins & Armat,  
586,953, July 20, 1897, Optics, Kinetoscopes, and on Gray, of  
record.

Claim 11, is rejected on Gray.

Claim 12, is rejected on Mayer, and on Greene & Evans.

Claims 13, 14, and 15, are rejected on Greene & Evans,

In claim 16, the word "as" before the numerals is objectionable  
rednering the claim indefinite, and modification is required.

Claim 17, also includes the objectionable word "as" and  
should be modified. It is observed that in this claim the

"pivoted frames 57, 58, each provided with a pair of rollers,"  
are interjected elements having no apparent connection with the  
remaining mechanism set forth. The relative location of these  
pivoted frames should be set forth, in order that some idea  
may be obtained of their function in the combination. Since  
the pivoted frames are not relatively located in this combination,  
this claim is held to be met by Greene & Evans, of record, and is

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Serial No. 593,747 Paper No. 12  
Amendt B  
Filed Jan 21 1902  
W. Latham

Claims

Room 217

APPLICATION, Woodville Latham.  
Apparatus for Projecting on a Screen  
Pictures of Moving Objects.  
Serial No. 593,747.  
Filed June 1, 1896.

Hon. Commissioner of Patents,  
Washington, D. C.

Dear Sir:-

Replying to official letter of April 12, 1901.

Before considering the present rejection on its merits, applicant desires to make the following statement:

It appears to the attorney now in charge of the case, who had nothing to do with it until immediately before the argument of the appeal before the Board, that the interference in this case was entirely without justification and measures should have been taken to avoid it. The issue requires, among other things, "a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure". It also provides "that the interval of pause and illumination shall exceed the interval of motion".

There never has appeared in Latham's case any claim referring to either of these features; nor has there ever appeared in the specification any reference to a tension device at the exposure window. He does not wish any tension there. He has simply the ordinary form of window which is adapted to hold the film flat, but there is no tension applied at this point, whereas in both the Casler and Armat applications a positively acting tension

applying device was present at the exposure window.

Again, there is no affirmative claim laid in the Latham case relative to the comparative time of the pause and the movement of the film. The interference was a mistake. It should never have been declared.

It is true that Latham's intermittingly acting mechanism, which moves the film across the optical axis, is of such character that the period of rest is four times as long as the period of movement, and he is entitled to make that claim, but prior to the interference he did not make it, nor did he make the slightest reference to the period of illumination being co-extensive with the period of rest.

The actual invention of the Latham case, and the thing which is of value and which he strove to protect and is entitled to protect, is his special construction, arrangement and combination of devices whereby the film is intermittingly moved across the optical axis in such manner that it is brought to a full stop at each picture and the movement is effected by reason of the continuous presence of the necessary amount of slack film with the least possible wear and tear upon it. In other words, he first disclosed a machine in which there were devices at the two extremes such as the two reels, one of which acts merely as a storage place and supplies the film for exposure, and the other acts merely as a receiver for the exposed film and coils it up, thus preserving and taking care of it, and in between these two film supporting devices and adjacent to the exposure opening there are applicant's specially

constructed and specially operating devices, and these operate successively upon an exceedingly limited portion or section of the film, to-wit, that part which, for the time being, is effective for the purposes of projection, and they are so constructed that they take positive reliable hold upon the film, thus compelling it to move for the formation of the slack at one side and its removal at the other side, and at one side of the exposure window there is located intermittently acting mechanism which, with great rapidity, moves the film from picture to picture across the optical axis, and this intermittently acting mechanism also is provided with means which positively and with certainly compels the film to move, and these slack manipulating and intermittently feeding mechanisms are positively geared together in such manner that they are compelled to act in unison with each other, effecting absolutely and without possibility of defective registration, the requisite movement of the film. It will be particularly noted that the reels at the extreme of the machine, which support the bulk of the film, are totally separate and distinct from these other mechanisms which are located adjacent to the exposure window, and which, acting upon the limited section of the film which is at that instant relied upon for the success of the operation and upon that only, effect the picture by picture transit irrespective of the length and consequent weight of the film on the reels, and with assurance of proper registration; consequently, applicant's apparatus realizes a most marked

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advance in this art. The reels and the bulk of the film are not affected at all by the step by step movement across the optical axis; consequently their inertia does not enter into the consideration at all. Also there is no question of frictional feed present, which is impossible to make successful. Also no question of increase or decrease in the diameter of the coil upon the supply or receiving reel is present. Also the intermittently feeding devices are extremely small in size and light in weight, and they operate upon an exceedingly limited section of the film; consequently they will stop and start instantaneously without exerting any strain or jar upon any part of the mechanism or upon the film. Also that the devices which may be called the exposure devices, take positive and absolute hold upon the film by reason of the engagement of the sprocket teeth with which they are provided in the holes in the film, so that there is no possibility of slipping which would result in faulty registration.

It is confidently asserted that no prior apparatus has ever been constructed which embodies that which is disclosed in applicant's case. He, before all others, appreciated the defects in pre-existing machines and devised means whereby an effective reliably acting one could be realized. In proof of this applicant refers to the Kayser patent No. 688,648, December 10, 1901. This patent was assigned to the Edison Mfg. Co., as appears on its face, and Mr. Kayser is, as the subscriber understands, the superintendent in the works of the Edison Mfg. Co. where the

kinetoscope machines are made.

The invention of this Kayser patent is for mechanism for "back winding" the film, but in Fig. 1 he discloses the recently adopted mechanism of the Edison kinetoscope. It will be seen that it is identical in every particular with applicant's invention.

See also the Armat patent No. 673,992, May 14, 1901. That was the patent issued to him on the interference in this case. It will be noted (see Fig. 13) that he likewise employs identically applicant's construction and arrangement of parts. Armat's claims are limited to a tension device at the exposure window.

The Circuit Court of Appeals in its decision on this case holds, in substance, that the Latham machine is an excellently constructed perfectly operative mechanism; that it embodies every feature of that which will be recited in the claims about to be presented, and the only reason the decision was adverse to Latham was because there was no proof, as the court thought, that he contemplated illuminating the picture during all the time the film was at rest. The record in the interference case shows the contrary, but that need not now be referred to.

In order that the marked differences between applicant's machine and the prior art machines, which constitute his a practically useful and desirable one which has superseded all the others, may be brought out clearly

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applicant now amends by canceling the present specification and claims and substituting the accompanying rewritten ones, and particular attention is called to the fact that in the rewritten specification he has not departed from the invention as originally set forth, nor has he added anything to it. He has made certain clerical corrections and has added an explanatory clause here and there that, in the interest of the public as well as in the exercise of a privilege he has, the meaning of his specification and the intent in his invention may be more clearly appreciated.

In view of the personal conference recently had with the Examiner it is believed that no extended reference need be made to the claims now presented, because on their face they are clearly differentiated from the prior art, and they are based strictly upon that which is disclosed in applicant's case as originally filed.

A brief reference will be made to the prior patents cited by the Office in the last official action which may be of aid in considering the newly presented claims.

Mayer patent, No. 525,991. This is an old form of apparatus which has been repeatedly tried and found wanting. It is absolutely impossible to stop and start the relatively reavy reels which support the bulk of the film, and which have considerable inertia, with the rapidity necessary in projecting life pictures. The jar and rack upon the machine would be such that any decent projection would be absolutely impossible. There must be slack forming and intermittingly acting mechanism between the reels which

support the bulk of the film which operate directly upon the small section of it ~~and~~ which, for the time being, is undergoing exposure and that only. It is absolutely essential that these exposing devices -- if they may be so called -- be light in weight, small in size and operating immediately adjacent to the exposure window, and also that they take positive hold upon the film so that the movements may be made with extreme rapidity and without the handicap of inertia to interfere with the instantaneous stopping and instantaneous starting.

Also in this Mayer reference there is no control of the film by the spools. When 25 or 30 feet of film is wound upon a spool it is possible to pull off from 1 inch to 3 or 4 inches, sometimes more, of the film without rotating the reel proper because of the mere fact of the slipping of the convolutions of the film upon themselves. This is the reason why any frictional feed directly from the reels is, and always has been, inadequate. It is impossible to maintain accurate registration between the pictures and the optical axis. Also the feeding roller will slip upon the face of the film itself.

Again in Mayer's construction there is no provision for the increase and decrease in the diameter of the respective coils of the spools. The amount of film crossing the optical axis will vary at each revolution of the spools. It is utterly impossible to project properly under these circumstances.

All of the above considerations are, however, unnecessary. Applicant claims a construction, arrangement

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and method of operation not at all presented in the Mayer patent.

Green, & Evans, English, No. 10,131. This apparatus appears, at first sight, to resemble applicant's, but upon a little careful scrutiny it will be found as different as daylight from darkness; so different that it must be inevitably a complete failure in operation. The main gear 28 through gearing 29-30 rotates a shaft 24x which has a slip connection with a spool 18, thus winding up the exposed film into a coil 20. A roller 12 receives motion by reason of its pressing against the surface of the coil 20 and thereby is supposed to transmit, by reason of such frictional contact, the same amount of unwinding action upon the spool 10-19. 13 is a mere idle guide roller and 39 is a shift continually rotated by gearing which connects it with driven gear 28, and there is a certain pawl which, at each revolution, lets go a coiled spring which actuates a drum 16 over which the film passes and by which it is supposed to be jerked across the optical axis. A roller 17 has grooves in it near its ends in which certain teeth which are upon the roller 16 enter, provided they have been able to puncture the edge of the strip as it is jerked forward.

It will be noted that this machine differs vitally from applicant's. There is no positively acting mechanism adjacent to the exposure opening which alternately produces and takes up the slack film, said devices being entirely separate and distinct from the film supporting

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reels and so constructed as to take positive hold of the film and compel its accurate movement and registration with the optical axis. This English patent has the two reels 18 and 19, but there are no positively driven devices separate and distinct from them located between them and at opposite sides of the exposure window for securing the formation of the slack. The idler 13 is a mere guide and has no control whatsoever over the film, and the spring actuated snapping roller 16 controls it only so far as the puncturing of the film by the teeth on its ends are enabled so to do. This is altogether inadequate. The punctures must be there before the film is applied to the apparatus so that the sprocket teeth may properly engage in the already perforated holes in the film, thus insuring accuracy of registration. Moreover, there is no intermittently acting device located between the slack manipulating devices for the intermittent and picture by picture movement of the film across the optical axis. If the roller 16 is this intermittently acting device then it cannot be the device which takes up the slack, and if the reel 18 which does coil up the exposed film be the slack reducing device, then there is no reel which takes the place of applicant's storage reel.

Aside from the foregoing, there are other vital differences. The slack forming device in the English patent is the roller 12 which relies upon frictional contact both for receiving and transmitting its motion, and this frictional contact is against the surface of the yielding

and unstable film itself, and it is not located where applicant's claims locate his slack forming devices. On the contrary, instead of being between the supporting reels which sustain the bulk of the film and adjacent to the exposure window, the roller 12 is between the two reels on the opposite side as remote as possible from the window. Slipping will invariably occur between the roller 12 and the surface of both the reels 18 and 19, for reasons already explained. There is an inevitable crawling or slipping of the film upon itself, and this action is influenced markedly by difference in atmospheric and climatic conditions. It is utterly impossible to properly project by any such mechanism. One picture may be .01 of an inch, the next will make it .02, the next .03, the next .04 and so on until after fifty pictures have been exposed they are .50 of an inch, in other words 1/2 inch out of registration. The Examiner will readily see what sort of satisfaction such a machine will give in projecting a film having from five hundred to perhaps as many thousand pictures on it. Again, every time the film is run through this machine the puncturing teeth or points on the snapping roller 16 are supposed to cut through the film. They can only feed the film properly by so doing. In this way after the film has been used say six times its edges will be cut off entirely and it will be ruined. But what degree of certainty can be attained by any such feeding device? It must be remembered that the snapping roller starts instantly with a

vicious snapping action. It is inevitable that under these conditions the puncturing of the film by the teeth on this roller, which is alone relied upon for proper feeding, will be uncertain and unreliable, and to a greater or less especially after two or three uses and the previous punctures are present degree a slipping or tearing action will take place<sup>which</sup> will tend to throw the film out of registration, and although the discrepancy may be slight for any one picture when multiplied by a thousand or two times will completely preclude proper projection.

The above is on the theory that the puncturing will be properly made, but it is perfectly safe to say that this will not be the case because the films are not always in the same condition, and a film which would properly puncture at one time would be too soft at another so that tearing to a greater or less extent would be inevitable; and on the other hand if the film be sufficiently tough to prevent this tearing, then at another time it would be so hard and horny as to prevent puncture, and these differences in the film continually occur. They differ in density, in thickness, the character of the developing, toning and fixing materials influence it. The condition of the atmosphere, the presence of moisture and heat or of frost and cold all effect marked changes, as is well known, in the film.

Applicant is aware that this Green & Evans English patent suggests that the delivering roll may be geared to the main driving gear<sup>28</sup>, but this does not cure any defect. On the contrary, it increases it because of the fact that the diameter of the coil upon the delivering roll will contin-

ually decrease, whereas the speed of its rotation is fixed. Consequently, at the commencement of a projection the loop of slack produced by the revolution of the coil of large diameter will be excessive so as to choke the mechanism and make so much film that the intermittently acting mechanism has to jerk forward, as to destroy proper action, and at the end of the projection the coil will be so small that not sufficient slack will be furnished, so that at each operation of the snapping roller the film will fetch up taut, thus in like manner precluding proper action.

It is not necessary, however, to urge all the foregoing. The Green & Evans patent does not show the parts as claimed by applicant in their construction, arrangement and method of operation.

The Jenkins & Armat patent, No. 586,953. The necessary modification in claims 8, 9 and 10 have been made. It is believed nothing further need be said in this connection because the controlling feature of the present case, that is to say, the feature of the slack, etc., is entirely lacking in this patent and also the timing of the intermittent feed.

Gray patent, No. 540,545. This comes too late. It is behind the time conceded to Latham by the Circuit Court of Appeals' decision. However, a suggestion or two may be made. The period of rest and period of movement at the exposure window in this patent are exactly the same. It is not possible that there be any difference.

Again, this apparatus is inoperative, and therefore,

under the well settled rule, cannot be cited as an adequate reference. The specification distinctly declares that the pictures are taken in two series which are in different planes. How, therefore, can they be in the focal axis when projected? Also, the order in which the pictures are taken, and consequently the order in which they will inevitably have to be exposed, is as follows: 2, 4, 6, 1, 8, 3, 10, 5, 12, 7, 14 and so on. This will produce certainly a most extraordinary exhibition of "objects in motion".

Again, the intermitting feeding devices are not rotary devices and the same vital defect, that is to say, the formation of the slack not by positively acting devices which take absolute hold upon the film and compel it to move, but the inoperative frictional contact roller is used which does not and cannot accurately feed. Applicant has made his claims specific and distinct in this respect. In the Gray machine when the slipping takes place the film will not be sufficiently advanced to enable the prongs of his intermittingly feeding devices to enter the holes in the film, which, it will be noted, are spaced quite far apart. Therefore, there will be no feed and the machine will fail to operate. No one has ever been known to use this Gray machine.

Again, in Gray's construction the machine is duplex in its action, and instead of the film being passed to the receiving roller after the exposure, it passes to a second exposing mechanism, thus conflicting the action of the apparatus. Applicant contends that the office should

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not, to his injury, make over the machine in such manner as to eliminate one of these exposure mechanisms, particularly under the circumstances here present.

In this case also all the foregoing is unnecessary because Gray does not show positively driven devices which make positive engagement with the film and compel its movement, said devices being separate and distinct from the film supporting reels. Gray's slack forming and slack reducing devices must act in conjunction with the supply and take-up reels respectively. They operate and can ~~only~~ operate only by pressure against the film on those spools and the slipping of the pressure rollers against the film and also the slipping of the film upon itself, heretofore referred to, will surely take place. The slack will surely be irregularly produced and lack of registration, indeed lack of feeding at all, will surely result. There are other differences aside from those heretofore recited, but they need not be specifically referred to.

Former claims 16 and 17 have been remodeled and now appear as claims 9 and 10, and it is supposed the objections made to them have been cured.

In view of the foregoing, and of the personal interview had with the Examiner, as stated, favorable action on the case as presented is respectfully requested.

Yours truly,

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Phillips Abbett

Atty for

Applicant

Dated New York, January 20, 1902.

REWRITTEN SPECIFICATION AND CLAIMS AS OF  
JANUARY 17, 1902.

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B' The present invention has reference to apparatus for projecting successively, and at frequent intervals, on a screen, or other plane surface, an extended series of photographs of moving objects whereby the movement of the objects may be accurately exhibited.

The purpose of the invention is to provide an apparatus capable of continuously projecting, or exhibiting upon a suitable surface a great number of pictures taken from moving objects and arranged upon a strip or film of great length, whereby each picture in the strip is brought to rest at the moment of projection so that there is given to the eye an impression of objects in motion in a manner now well understood.

In an apparatus organized so that the picture-bearing strip is caused to move continuously and uninterruptedly across the optical axis, a light of very high intensity is necessary to give satisfactory results, but a light of such power is not required for satisfactory projection by means of an apparatus embodying the principle of the present invention. The stoppage of each picture during its exposure permits the requisite quantity of light to pass through the condenser, the picture and the

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objective to the screen or plane surface upon which the image is projected, when the light employed is only of a moderately high power.

The invention, therefore, consists in an apparatus for projecting successively a large number of pictures of moving objects embodying, among other things, means for bringing each picture to rest at the moment of projection; means for reducing the strain the picture film would otherwise suffer from the rapid interruption and renewal of its movement, and means for maintaining uniformity of <sup>movement</sup> tension of the film as it unwinds from the delivering reel and as it winds upon the receiving reel, all as set forth in the claims at the end of this specification.

In the accompanying drawings, which form part of this description, one form of apparatus embodying the invention is illustrated. In the drawings like features are designated in the several figures by like numerals of reference. Figure 1 is a side elevation of the apparatus. Figure 2 is a cross section on the line 2, 2, of Figure 1, partly broken away. Figure 3 is a section on broken line

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3  
7  
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3, 3, of Figure 2, looking toward the machine. Figure 4 is a fragmentary section on line 4, 4, of Figure 2. Figure 5 is a similar section on the line 5, 5, of Figure 2. Figure 6 is a vertical section through the machine, showing the slack in the film taken on the line 6, 6, of Figure 2. Figure 7 is a similar section showing the devices for pressing the film into contact with the guide rollers and drums, thrown out of action. Figure 8 is a sectional view on the line 8, 8, of Figure 2, and Figure 9 is a section on the line 9, 9, of Figures 1 and 3 through the power transmitting appliances, showing the relation of the parts when winding back the film to the delivering reel.

The several parts of the apparatus may be mounted upon an optical bench indicated in the drawings at 10 of any convenient design. At the ends of the bench 10 are the brackets 11 furnishing supports for the pair of longitudinal rods 12 upon which are mounted the standards 13, 14, 15, said standards being bifurcated to connect with the rods 12.

The standard 13 supports a projecting lens or an ordinary objective 16 which may be readily adjusted to bring it in proper relation to the picture being projected, and standard 14 supports the condensing lens or lenses 17, while the standard 15 supports the lamp 18 which, in this instance, is shown as a focusing arc lamp. The lamp 18 is preferably adjustable on its support both vertically and laterally and the standards for the condensing lens and the lamp are so constructed that they may be adjusted longitudinally on the rods 12 so as to obtain the proper relative relation between the lamp and the condenser and the condenser and the picture strip.

The mechanism for supporting and propelling the shutter and the picture-bearing strip is arranged above and below the optical bench 10 on standards 19 which extend vertically above the bench and for a short distance beneath, and are braced by the brackets 20 which also furnish bearings for the longitudinal rods 12, as seen in figure 2.

The picture-bearing strip, or film, which may be of any desired length without in any way affecting the operation of the machine, is indicated at 21 in the several views. It is wound upon the delivering reel 22 the shaft of which, 23, is journaled in the lower ends of the standards 19. The receiving reel 24 is similarly mounted at the top of standards 19, its shaft 25 having bearings in said standards and being extended at one side beyond the standard to receive a pulley 26 for the belt 30<sup>a</sup> transmitting the motion of the driving shaft to the receiving reel. The function of these two reels is merely to support the bulk of the film while successive sections of it are subjected to the feeding and exposing mechanism. One of the reels supplies the film for exposure and the other coils up and takes care of the film after exposure. The picture-bearing strip 21 is conducted through and over its guiding and controlling mechanism mounted in standards 19, and secured to the hub of reel 24; the said strip when in the position it is caused to assume when the apparatus is projecting has two slack sections contiguous to the sprocketed feed drums for the purposes presently explained.

To one side of the standards 19 there is fixed a bracket 27 in which the main shaft 28 is mounted in bearings 28<sup>a</sup>. At one end of this shaft 28 there is keyed a pulley 28<sup>b</sup>.

29 to receive the driving belt 30 and at its opposite end is fixed the hub of the shutter 31. On the main shaft 28 is keyed the bevel gear 32 which meshes with a bevel gear 33 fixed to the end of shaft 34 which revolves in bearings 34<sup>a</sup> in bracket 27 and adjacent standard 19; the revolution of the shaft 28 being thereby transmitted to shaft 34. The shaft 34 has keyed to it a pulley 35 which receives the belt 30<sup>a</sup> transmitting motion to the receiving reel, and it has also keyed to it the small gear wheel 36 which engages with the large gear wheel 37 keyed to shaft 38 having bearings in bracket 27 as well as in standards 19, said shaft carrying the toothed drum 39 and having keyed to its outer end a bevel gear 40 which meshes with another bevel gear 41 fixed to the upright shaft 42 supported in brackets 42<sup>a</sup> on standard 19, and having at its upper end a bevel gear 43 which meshes with a like gear 44 on the end of shaft 45 which carries a toothed drum 46 and has bearings in standards 19. By this mechanism the toothed drums 39 and 46 are caused to revolve continuously at a uniform rate when power is communicated to the main shaft 28. It is obvious that other forms of gearing may be employed to drive said toothed drums 39 and 46 in unison.

Shaft 34 has also keyed to it broken gear 47 (Figure 5) which is adapted to engage with a broken gear 48 fixed to shaft 49 having bearings and standards 19 and carrying a toothed drum 50. The gear 48 on the shaft of drum 50 is provided with a series of four toothed sections and a series of four plain sections the surfaces of the latter being made to conform to the toothless portion of the circumference of the broken gear 47, so that while the

gear 47 revolves continuously it intermeshes with gear 48 only momentarily as it completes each revolution, moving the gear 48 intermittently and thus producing momentary stoppage of the drum 50 once with each complete revolution of shaft 34. At the moment of stoppage of the drum 50 the smooth surfaces of the gears are in sliding contact and remain so until the shaft 34 completing another revolution the teeth of the two gears again intermesh revolving the drum 50 one-fourth of a revolution and so on continuously said drum momentarily stopping as the picture-bearing strip is moved through the apparatus the length of one picture, thus bringing each picture to rest at the moment of projection, and hence in a device of the construction described the period of rest of the film is four times greater than its period of movement.

To prevent any vibration of the picture at the moment of projection the smooth surfaces of the broken gears 47 and 48 should preferably be held in close sliding contact and with this end in view the bearings 34<sup>a</sup>, 34<sup>a</sup> (see figures 4, 5 and 8) of the shaft<sup>34</sup> are made eccentric so that by means of the adjusting screws, 51, 51, passing through lugs 52 on bracket 27 and bearing at their points on opposite sides of the yoke 53 connected to or formed with said bearings, the shaft 34 may be slightly raised or lowered as required. This mode of adjustment has been found in practice to be efficient and to satisfactorily answer the purposes intended.

Because of the rapid interruption and resumption of the movement of the picture film it is necessary to provide means for reducing the strain on the same to prevent its being ruptured by the teeth of the sprocket drum 50, which

actuates or feeds the film intermittently by engaging in holes at its edges, and it is also necessary or desirable, to provide means for maintaining uniformity of tension of the film as it unwinds from the delivering reel and winds upon the receiving reel. The manner whereby these objects are effected will now be described.

The numerals 54, 55 and 56 indicate rollers for supporting and guiding the picture-bearing strip 21 and are arranged to freely revolve on fixed shafts supported in the standards 19. The picture-bearing strip or film 21, which has photographically produced upon it a series of pictures representing the successive stages or positions of the moving object or objects to be reproduced, is conducted from the delivering reel 22 over the guide-roller 54, toothed or sprocketed drum 39, guide-roller 55, past exposure window 56<sup>a</sup> which is attached to the standards 19 in the line of the optical axis of the apparatus, toothed drums 50 and 46 and guide roller 56 to the receiving reel 24 to the hub of which its end is secured. The strip or film is perforated at regular intervals along its lateral edge so as to correspond exactly with the sprocket-like teeth arranged on the circumference of the drums 39, 46 and 50 near their ends respectively.

In figure 6 the parts of the mechanism for controlling and guiding the picture-bearing strip or film, as well as the strip itself, are in position for projecting, and in figure 7 the parts are shown in the position they are made to assume when the picture-bearing strip is being wound back from the receiving to the delivering reel.

To secure the necessary engagement between the picture bearing strip 21 and the feeding drums 39, 46 and 50 so that the strip may be fed or moved with greater accuracy and certainty, the frames 57 and 58, pivoted as shown to the standards 19 are provided and they are supplied with the freely revolving rollers 57<sup>a</sup> and 58<sup>a</sup>. (See fig.7) The rollers 58<sup>a</sup> carried by frame 58 are adapted to co-operate with the toothed drums 46 and 50, and they have circumferentially near their ends grooves as shown in figure 2 to receive the teeth or sprockets of said feed drums when the frame is fixed in the position it occupies when the apparatus is projecting; and the rollers 57<sup>a</sup> of frame 57, one of which co-operates with ~~the~~ toothed drum 39, are similarly constructed for the same reason, the upper roller 57<sup>a</sup>, which co-acts with the toothless guide roller 55, being grooveless on its circumference. The frames 57, 58 are held in the two positions which they are adapted to occupy -- as in figure 6 when projecting or as in figure 7 when the picture-bearing strip is released so as to be wound back from the upper to the lower reel -- by the removable rods which pass through suitable holes in the standards 19, and engage with the ends of the frames, as shown in figures 6 and 7. When in the position shown in figure 6, the rollers carried by frame 57 are between the sprocket drum 39 and the guide roller 55, while the rollers carried by frame 58 are between the sprocket drums 46 and 50. Within the planes occupied by the two sets of rollers 57<sup>a</sup> and 58<sup>a</sup>, when the apparatus is adjusted for projecting, i.e., when in operation, the film or picture-bearing strip 21 is thrown out in the form of a loop as

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shown at 21<sup>a</sup>, 21<sup>b</sup>, one of these slack portions being at one time above window 56<sup>a</sup> and the other at another time above the same. The extent of each of said slack portions is preferably that of the height of a picture, or slightly more. It will be understood from the description that follows that the loops of slack below and above the exposure window are alternately thrown out and then taken up by the operation of the sprocket drums respectively and that they produce and take up the slack by their own positive action entirely independent of the film supporting reels at the extremes of the apparatus. In the operation of the machine the rollers 57<sup>a</sup>, 58<sup>a</sup> hold the strip in proper contact with the respective feed drums and guide-roller 55 as will be understood from figure 6, and insure proper contact between the strip and the respective drums.

The picture-bearing strip is carried through the apparatus with great rapidity and because of the rapid interruption and resumption of its movement it would not be possible for the strip to withstand the strain brought upon it for any considerable time if there were not provision made for the slacks in the film as just explained. The instant each picture of the strip is brought in the line of the optical axis the toothless surfaces of the broken gears 47, 48 are in sliding contact, their respective cogs being out of engagement, with the effect of causing stoppage of revolution of the toothed drum 50 and consequent momentary stoppage of the film between said toothed drum 50 and the toothless roller 55 beneath the optical axis, but the revolution of shaft 38 being continuous the toothed drums 39 and 46, which latter is positively geared from said shaft as

explained, also revolve continuously, taking up the slack 21<sup>b</sup> between toothed drums 46 and 50, and also replacing the slack 21<sup>a</sup> between toothed drum 39 and roller 55, thus restoring the slack 21<sup>a</sup> to be again taken up when the broken gears 47, 48 again momentarily intermesh. It will thus be seen that as the slack 21<sup>b</sup> is taken up at the moment of stoppage of the toothed drum 50, the slack 21<sup>a</sup> is simultaneously being restored and this action is continuous and positive and independent of the other parts of the machine while the operation of projection is going on. There is therefore but little if any additional strain on the film incident to the rapid interruption and resumption of its movement through the apparatus.

The construction and operation of the devices which produce and take up the loops of slack film and also those which intermittently feed, or so to speak, jerk the film from picture to picture across the exposure window or axis of the lens, from an exceedingly important part of this invention. It will be noted that they are entirely separate and distinct from the reels which support the weight of the bulk of the film, and which are consequently relatively heavy, so that the length and consequent weight of the film may be indefinitely extended without affecting the operation of the machine. The intermittently feeding devices, on the other hand, which comprise only the broken gear 48 and the feed drum 50, with its shaft, are very light and consequently have very little inertia, and since also the small portion of the film, which this part of the apparatus actuated, has scarcely any weight these parts will instantly stop and start with great rapidity and with

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a minimum of strain or jar upon the mechanism and with the least possible wear on the holes for the sprocket teeth in the film, and in order that the slack may be formed and the intermittent movements across the optical axis effected with accuracy and certainty, it is desirable, <sup>although not essential</sup> that the rollers which effect these movements be provided with the sprocket teeth shown, or their equivalent, so that they may positively engage with the film and positively move it without the possibility of any slipping which is apt to occur when frictional contact alone is relied on, because such slipping will preclude proper registration between the picture and the optical axis.

In order that these parts may operate as described, it is essential that the loop of slack film be maintained at all times ready for the intermittently acting device, and also that the slack manipulating and the intermittently moving devices be positively driven by mechanism which will absolutely insure the presence of the slack and the accurate movement of the film. The reason these parts, and their arrangement and method of operation are such important and valuable features of the invention is because their action is necessarily exceedingly rapid, and if the intermittently feeding mechanism were heavy, so as to have much inertia, or if any considerable portion of the film, or either of the reels which support it, were stopped and started at each transition from picture to picture, there would be such strain brought to bear on the sprocket holes in the film as would speedily tear it adjacent to such holes, thus ruining it, and since

these films are expensive, a good one being capable of making large profits for its owner, any means which will prolong their life is of great value in this art.

Another feature peculiar to my invention, and one which distinguishes it from certain other apparatus, is the important fact that the intermitting feed devices and the slack former being entirely separate and distinct from the other parts, are alone relied upon for securing accurate registration of the successive pictures with the axis of the projecting lens. The supply and coiling reels at the extremes of the machine may operate with only substantial accuracy and still the results be satisfactory because they have nothing to do except to properly support <sup>and take care of</sup> the film, supplying it at one side and taking it away at the other. The intermitting feed devices, and the slack producing devices, on the other hand, which lie between the two reels, and immediately adjacent to the exposure window, control and manipulate that special and limited part of the film which is at that instant relied upon for the desired results, and it is a comparatively easy matter to accomplish exactness in operation when this part of the mechanism is separate and distinct from the other.

Uniformity of tension of the films as it unwinds from the delivering reel, to prevent the film from buckling and insure its proper entrance to the apparatus, is secured by any suitable friction device applied to the shaft 23 of said reel. In the drawings is shown a metallic strap with an adjusting screw for this purpose. This friction device is indicated by 60.

The rate of winding of the picture-bearing strip

upon the receiving reel is regulated by automatically controlling the revolution of the reel by means of the idler 61 which is shown loosely journaled on shaft 34. The idler is provided with a slot, as shown, in which is adjustably fixed roller 62 and around this roller is passed the belt 30<sup>a</sup>. By adjusting roller 62 in the slot the pressure on the belt is varied. As the reel 24 becomes larger by the winding of the film thereon, the idler may be manipulated to loosen the belt 30<sup>a</sup> and to cause it to slip on pulley 26 of the reel shaft. This slipping is, or may be, a continuous one from beginning to end of the operation of the machine, but it is such a gentle slipping that no appreciable heat is produced and no appreciable wearing of the belt. The outer end of the idler is screw-threaded and provided with a weight 63 by means of which a nicer adjustment of the pressure exerted by the idler is obtained. By this means the rate of revolution of the receiving reel is automatically maintained in proper correspondence with that of the feed drum 46.

The shutter 31 carried by the shaft 28 has but a small solid section. Its use is to cover the film during the interval of movement of each picture.

The power may be imparted to the main shaft 28 through a friction regulating and controlling appliance attached to the bottom of the optical bench by means of the bracket 64. In this bracket is journaled the shaft 65 carrying at one end a friction plate 66 and having keyed to its opposite end a pulley 67 adapted to receive the belt 30 which passes over pulley 29 on the main shaft 28. The friction plate 66 co-operates with a friction roller 68

keyed to shaft 69 the said shaft having a longitudinal groove 70 and being provided with pulley 71 receiving the belt 72 to the motor and also with pulley 73 adapted to receive belt 74 (see Figure 9) which is made use of to transmit the power of the motor to the delivering reel when winding back the film from the receiving reel, the shaft of said reel being provided with pulley 73 to receive said belt. The pulleys 71 and 73 are connected to shaft 69 by feathers entering the groove of said shaft, as shown in Figure 9, so that while these pulleys cannot turn on the shaft the shaft can be moved through the hubs of the pulleys which is done when adjusting the friction roller 68 with relation to the friction plate 66. The hub of the friction roller is connected by an arm 76 having a screw-threaded sleeve through which passes screw-threaded shaft 77 supported in bracket 64 and adapted to be turned by crank 78 to permit the adjustment of the friction roller toward or from the center of the friction plate to increase or diminish the rate of speed of the friction plate shaft 65 in a manner well understood, the rate of speed of the main shaft 28 connected to the friction plate shaft 65 through belt 30 being thus determined and regulated as desired. The pressure of the friction plate 66 against the friction roller 68 is regulated by means of the milled head screw 79, the point of which enters a depression in the end of the friction plate shaft, as shown in figure 3.

In figure 9 the friction speed regulating appliances are shown adjusted for winding back the film from the receiving and delivering reel, the friction roller 68 having been shifted across the center of the friction-plate so

...the film the pulleys 73 and 75 are connected by belt 74 and the frames 57, 58, are swung back as shown in Figure 7 so as to relieve the film of all binding tension.

The reels may be of size suitable to carry any length of picture-bearing strip that may be desired.

In operating the apparatus, power is transmitted from the motor, not shown, by belt 72 and through friction plate shaft by belt 30 to main shaft 28 of the apparatus. The operation of the gearing and the manner in which the teeth of the feed drums engage the perforations in the edges of the picture-bearing strip and move it from the delivering to the receiving reel, and across the opening 56 in the line of the optical axis of the apparatus with a momentary stoppage of the film crossing the optical axis as the central portion of each picture is brought in the line of the optical axis, will <sup>all</sup> be understood from the preceding description. Whenever the central portion of a picture is in the line of the optical axis and the picture comes to rest, the light will pass simultaneously through the condensing lens, through the picture and through the objective outward to the screen or other plane surface. The light, of course, must be so adjusted as to cover the whole of the picture. The pictures are projected successively with such great rapidity, each succeeding picture showing a slightly advanced stage of motion, that the effect on the eye of the observer is exactly the same as if a moving object or objects were being looked at directly.

It is to be understood that many of the mere details of the apparatus herein described may be varied with-

out departing from the principle of my invention, as for example while the mechanism shown and described for forming the slack in the film and causing the picture-bearing strip to travel in such manner that there is a real stoppage of the film as each picture is presented in the line of the optical axis, is the form and character preferred by me, it is obvious that the principle of the invention may be retained with differently organized gearing and the employ-

Sub C 1. The combination with a flexible strip or film, and devices for supporting the bulk of the film before and after exposure, of positively actuated feeding mechanisms located between the devices for supporting the film, one of said feeding mechanisms being constructed to positively feed the film and produce a predetermined supply of slack, and the other adapted to positively and intermittently feed the slack film across the exposure window.

2. The combination with a flexible strip or film, and devices for supporting the bulk of the film before and after exposure, of positively actuated feeding mechanisms located between the devices for supporting the film, one of said feeding mechanisms being constructed to positively feed the film and produce a predetermined supply of slack, and the other adapted to positively and intermittently feed the slack film across the exposure window, and constructed also to cause the intervals of rest of the film to exceed its intervals of movement.

3. The combination with a flexible strip or film, and devices which support the bulk of the film and supply it for exposure and take care of it after exposure, of positively driven devices separate and distinct from the film supporting devices, located between them and at opposite sides of the exposure window, and which respectively are provided with means to positively engage and feed the film, and which respectively produce and take up slack in it, and an intermittently acting device located between said last named devices which intermittently moves the

slackened part of the film across the exposure window.

4. The combination with a flexible strip or film, and devices which support the bulk of the film and supply it for exposure and take care of it after exposure, of positively driven devices separate and distinct from the film supporting devices and which are provided with means to positively engage the film and compel its movement, and which feed the film by uniform and continuous rotary action, and an intermittingly acting device located between said last named devices and which moves the slackened part of the film picture by picture across the exposure window and causes its period of rest to exceed its period of movement.

5. The combination with a flexible strip or film, and devices which support the bulk of the film and supply it for exposure and take care of it after exposure, of positively driven devices separate and distinct from the film supporting devices and located between them at opposite sides of the exposure window, and which are provided with means to positively engage the film and insure its feeding, which last named devices respectively produce and take up slack in the film, and an intermittingly acting device provided with teeth which engage in holes in the film whereby it feeds the film across the exposure opening, and causes its period of rest to exceed its period of movement.

6. The combination with a flexible strip or film, and devices which support the bulk of the film and supply it for exposure and take care of it after exposure, of a positively driven device located between the film supplying device and the exposure window and which produces a loop

of slack film, and an intermittently acting device which engages positively with the film and feeds the slackened part of it across the exposure window, and causes its period of rest to exceed its period of movement.

7. The combination with a flexible strip or film having continuous rows of equally spaced holes in its opposite edges, and devices which support the bulk of the film and supply it for exposure and take care of it after exposure, of positively driven devices located between said supporting devices and at opposite sides of the exposure window, and which are provided with teeth arranged to accurately engage in the holes in the film and which respectively produce and take up slack in it, and an intermittently acting feeding device also provided with teeth which accurately engage with the holes in the film whereby the film is intermittently fed across the exposure opening.

8. The combination with a flexible strip or film of two reels which support the bulk of the film, one of which supplies it for exposure and the other coils it up and takes care of it after exposure; a positively driven device separate and distinct from the said reels and located between the supply reel and the exposure window and which produces a loop of slack film, and an intermittently acting device likewise positively driven which moves the film picture by picture into the optical axis at the exposure window and causes each picture to remain momentarily at rest in the optical axis.

9. The combination with a flexible strip or film of two rotary reels which support the bulk of the film, one of which supplies the film for exposure and the other

feeding mechanisms located between said reels, one constructed to feed the film intermittently and cause it to move picture by picture across the axis of the lens and to come to rest in said axis, the other constructed to feed the film continuously and provide a constant supply of slack film and gearing positively connecting the said two feeding mechanisms for maintaining a fixed relation between them.

10. The combination with a flexible strip or film provided with a series of holes of two rotary reels which support the bulk of the film, one of which supplies the film for exposure and the other coils it up and protects it after exposure, two rotary feeding rollers located between said film supporting reels each provided with teeth for engaging the holes in the film, actuating mechanism and connecting gearing between said feeding rollers which positively actuates one of the feeding rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion, and which also positively actuates the other feeding roller continuously and this provides a constant supply of slack film.

11. The combination with the main shaft provided with a broken gear mounted in eccentric bearings and a feed drum whose shaft is provided with a broken gear which meshes with the first named broken gear or means for adjusting said bearings to regulate the contact between said gears.

12. The combination with the supporting standards and pivoted frames 57, 58 each provided with rollers of tooth drum 39 and roller 55 between which the rollers of one of said frames normally rests, and toothed drums 46, 50 between which the rollers of the other frame normally rests, and means for imparting continuous motion to drums 39 and 46 and intermittent motion to drum 50, and a picture bearing strip adapted to engage with said drums and rollers.

## DEPARTMENT OF THE INTERIOR.

S. C. O.

UNITED STATES PATENT OFFICE.

1389

WASHINGTON, D. C.,

February 18, 1902.

Woodville Latham,

MAILED " " "

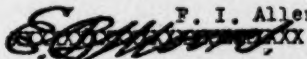
Care of Phillips Abbot,

206 Broadway, New York,

N. Y.

*Please find below a communication from the EXAMINER in charge of your application.*  
#593,747, filed June 1, 1896, Apparatus for Projecting on a Screen  
Pictures of Moving Objects.

F. I. Allen.



Commissioner of Patents.

This case has been carefully considered in view of the amendment of the 21st ultimo.

As to the date of reduction to practice of the machine filed as an exhibit in the late interference with Armat and others, the examiner is unable to ascertain that the Court of Appeals of the District of Columbia found any certain date. In that interference it appears that the court held that the applicant had never reduced the invention to practice prior to the reduction by Armat, and it was for this reason that the unfavorable decision was rendered. The earliest date which it now appears may be given to applicant is that of the date of filing of this application, viz., June 1, 1896.

Since the patentability of many of the claims now in this case appears to depend upon the light in which the patent to Armat, #673,992, May 14, 1901, Optics, (18), is to be considered, the pertinency of this patent as a reference in this case must be ascertained. This application was in interference with the application upon which the above patent to Armat was granted, and the interference was actively contested for a number of years, resulting finally in a decision by the Court of Appeals of the District of Columbia which was unfavorable to the applicant. In the opinion of the examiner, the patent to Armat is a valid reference against

this case for all that is shown therein which is not distinct and separable from the subject-matter of the interference.

In this connection attention is invited to the MS. decision in *Harkness v. Strohm*, November 11, 1899, wherein the Commissioner said as follows:

"In view of ex parte Booth (56 O.G., 141) and ex parte Guilbert (85 O.G., 454), the claims of the defeated party to be allowable must not only be patentable over the issue itself, but over the structure of the successful party to which that issue is drawn. The structure to which the claim is drawn and not merely the claim itself is the thing that is in controversy, and after the decision on priority the defeated party obviously should not be permitted to insert the other claims to the same matter, although they may contain specific differences and thereby provoke a second interference in regard to the same device previously contested. To do so would provide a way whereby the defeated party to an interference could by successive interferences indefinitely delay the issue of a patent to the successful party."

In the case of *Fassett v. Ewart Mfg. Co.*, 64 O.G., 439, the court considered the question of the effect of an adverse decision on priority in the patents, and said:

"The conclusive consideration is that the so-called fundamental or generic claims and the specific claims found in cases A and B and in the *Howe* patent are for the same machine as a whole and not for different parts thereof, and are distinguishable only in respect to their scope."

In this case the patentee had been defeated in an interference in the patents on an issue covering the same device, although said issue contained specific differences from the generic claims in suit, and the court said:

".... there was therefore no practical reason for prosecuting the generic claims, except to procure a patent which would dominate the other two, the effect of which should be to nullify the decision in favor of *Howe* upon the interference."

The Court of Appeals of the District of Columbia in its decision stated that:

"All the tribunals agreed that *Armat's* conception and reduction to practice could not have been earlier than about November, 1895."

Claim 1 is rejected on *Armat*, #673,992, May 14, 1901, Optics, (18); *Casler*, #666,495, January 22, 1901, Optics, (18), and *Gray*, of record. Each of these patents shows the flexible strip or film, devices for supporting the film before and after exposure, and

positively actuated feeding mechanisms located between the devices for supporting the film, one being constructed to positively feed the film and produce a predetermined supply of slack, and the other being adapted to positively intermittently feed the slack film across the exposure window. The only attempt made to distinguish from the construction shown in the above patents is the inclusion of positively actuated mechanisms. However, it is thought that the use of the word "positively" in this connection is not sufficient to distinguish from the references, inasmuch as in this class of devices it was common, long prior to the applicant, to feed the film positively, as shown in other references, notably LaPrince, of record. This claim is further rejected on Jenkins & Armat, in view of Gray, both of record.

Claim 2 is rejected on Casler and on Armat, above cited.

In claim 3, and in other claims, the phrase, "take care of it", is found. This phrase is regarded as indefinite, and some other term should be employed. However, this claim is anticipated by the references cited in connection with claim 1, and is rejected.

Claim 4 is rejected for the same reasons as claim 1.

Claim 5 is rejected on Jenkins & Armat, in view of Gray; and it is also met by Armat, in view of Gray, or Edison, #589,168, August 31, 1897, Optics, (17).

Claim 6 is rejected for the same reasons as claim 1.

Claim 7 is rejected on Armat, in view of Gray or Edison.

Claim 8 is rejected on Casler and on Armat.

Claims 9 and 10 are rejected on Armat.

As at present advised, claims 11 and 12 may be allowed.

J.W.A.

E. L. Chapman

Examiner

12

Filed July 18, 1902.

1332

(Dictated.)

Washington, D.C.

July 18, 1902.

Hon. Commissioner of Patents,

Sir:

I hand you herewith associate power in the application of Woodville Latham, Apparatus for Projecting upon a Screen Pictures of Moving Objects, filed June 1, 1896, Serial No. 569,747.

23

Respectfully,

Foster & Freeman

NEW YORK, July 16th, 1902

Room No. 217.

Application of Woodville Latham,  
Apparatus for Projecting upon a Screen Pictures  
of Moving Objects,  
Filed June 1st, 1896  
Serial No. 569,747

Hon. Commissioner of Patents,

Washington, D. C.

Dear Sir:-

I hereby constitute and appoint Messrs. Foster & Freeman  
Attorneys  
of 931 F. Street, N. W., Washington, D. C. my associates in the  
prosecution of the above application for patent in the United States  
Patent Office.

24

Yours truly,

Phillips Abbott

Attorney for Applicant.

Serial No. 593,747 Paper No. 15  
Amendt C  
Filed July 18 1902

Claims 1,2,3,4,5,6,8,9,  
11,12

Application of Woodville Latham,  
Apparatus for Projecting upon a  
Screen Pictures of Moving  
Objects,

Room No. 217

Filed June 1st, 1896,  
Serial No. 563,747

Hon. Commissioner of Patents,  
Washington, D. C.

Dear Sir:-

Replying to official letter of February 18th, 1902  
and as per personal interview had with the Examiner on  
July 8th, 1902, applicant's position is as follows:

The law undoubtedly is and should be that in an interference proceeding, those features of the invention which are directly included within the scope of the issue of the interference are foreclosed against the losing party; and it is equally well settled that no features of the invention, excepting those which are so included, are in any wise affected by the interference proceedings. This has been the immemorial practice in the Patent Office and is the only just and equitable view possible in the premises. It is immaterial what the scope of the claims subsequently presented by the defeated party may be, if they are not within the scope of the issue. They are to be considered by the Examiner precisely as though there has been no interference.

In other words, the decision in the interference proceeding becomes merely a reference for that which is specifically decided by it.

In *Ellis v. Lee v. Howe*, C. D. Wss. March 5, 1895, one of the parties, Howe, contended that the defeated party in an interference contest cannot thereafter have allowed to him a claim or claims, which although not expressly involved in interference, would dominate the victorious party's device. The Commissioner (Mr. Simonds) held that that proposition was not sound. The victor in an interference contest is entitled to claim everything coming fairly within the issue upon which he has been victorious, but to say that if a specification presents two features of invention, only one of which is involved in an interference contest, that a judgment upon that feature carries with it the fate of both is to state a proposition whose unsoundness is demonstrated by the mere statement.

The doctrine applies peculiarly here, for this case is markedly different from most interference cases. Indeed, the subscriber does not know that precisely this case has ever arisen before, for the following reasons:

First, in this case the broad controlling claims have never been at issue at all. They have always from the start been conceded to Latham, the applicant. The interference was declared (erroneously it is true, but nevertheless declared) on Armat's exceedingly limited claim, the limitations in which are dwelt upon in the decision of the Circuit Court of Appeals for the District of Columbia. It involves a specific and restricted method of operating

mechanism involving the presence of a shutter and requires as an essential feature that the period of illumination shall be coextensive with the duration of pause of the film.

Second: The second fact which distinguishes this from other cases is that the Court apparently with intent, makes a dual set of findings in its decision, finding for Latham on all points excepting the special feature referred to, i.e., the concurrent duration of the pause and illumination of the film. A reading of the decision, together with that which transpired at the hearing, leads unmistakeably to the conclusion that the decision was awarded as it is, in order that Latham's rights might be preserved to him and that he might thereafter present broad claims for that which constitutes his actual invention, so that in due course, claims therefor might be awarded to him by the Office, although he was not considered entitled to the special and specific method of operating the mechanism as recited in the interference issue.

That broad claims are conceded to Latham is conclusively shown by the fact that Armat, although victorious in the interference concerning the limited subject matter of the issue, nevertheless knowing full well that Latham was entitled to the broader claims, he took his patent after the interference with every claim limited to the specific features embodied in the general invention to which he felt himself entitled, but distinctly did not claim the mechanism broadly, knowing that that belonged to Latham.

In other words, Armat's peculiar tension device and the concurrent duration of pause and illumination appear in every one of his claims.

It is also pertinent to notice that Casler recognized Latham's superior right to the broad claims, because his patent is likewise in every claim limited to his peculiar gripping device. It is true that Casler was beaten at every stage in the interference by Latham. It is significant that in not one of the eight claims presented by him does he depart from his special detail of construction, to wit, his film gripping device.

From the above state of facts, it is unnecessary to refer to the fundamental doctrine relative to estoppel, to wit, that it can extend only to that which is directly included within the issue presented by the pleadings; and in as much as that issue was, as defined by the Court, specifically limited to a certain definite method of running the apparatus to produce a specific result, anything outside of that is not affected in any way by the decision and Latham is now entitled to present the claims now presented and they should be approved, since the Court of Appeals has gone out of its way to find for him in this respect. In addition, both Armat's and Casler's patents as issued in the most emphatic manner possible concede the right to Latham so to do.

Referring briefly to the decision of the Court of Appeals, after awarding the date January 1st, 1895 to Latham and finding his machine to be operative and that it embod-

ied the fundamental feature of the two supporting and independently acting feeding mechanisms, one operating continuously and the other intermittently, and after considering Latham's contention that the prior tribunals had misconceived his invention, the decision proceeds by stating in substance that whatever Latham's invention actually was and whether or not there has been a mistake made, the Court finds the issue that it is to consider laid down for it and under the practice, it is not permitted to depart therefrom, and in it it finds as an essential element or feature "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of and illumination pause shall exceed the interval of motion".

The Court then considers certain prior constructions, involving shutters operating differently from Armat's and "by reason of this the period of illumination was made less than the period of rest and the general effect of the exposure was impaired. . . . At any rate, it was thought essential to the combination allowed and as such declared in interference, that the period of pause and illumination should exceed the period of motion required to bring forward the next succeeding picture of the series. This was equivalent to contending that each picture when in the field of exposure should be illuminated without interruption. . . . Again patentable novelty has been declared in the Patent Office to lie in an apparatus embodying all of the elements set forth in the issue. The rule of the

be  
 "Patent Office seems to...well established that when a  
 "party has incorporated an element into his claims, it is  
 "to be regarded as a material part of the invention. . .

"It appears that the original apparatus of Latham (Ex-  
 "hibit No. 12) on which his reduction to practice of the  
 "invention of the issue has been claimed, operated with  
 "double mechanisms, one continuously feeding the film from  
 "the roll and the other intermittently moving it across  
 "the path of exposure. This was undoubtedly an effective  
 "machine operated as a camera for taking consecutive pic-  
 "tures, but that is the only practical use to which it has  
 "been put. That it was experimented with on one or more  
 "occasions by Professor Latham and his sons, as an appara-  
 "tus for projecting pictures may be regarded as established.  
 "The machine was kept and satisfactorily operated as a  
 "camera for taking pictures. . . . We are free to confess  
 "in this case that <sup>an</sup> inspection of the original machine and  
 "the proof of its efficient performance in intermittently  
 "moving the film in the taking of pictures, in connection  
 "with the evidence of the first private trials in exhibiting  
 "the pictures, has strongly inclined us to decide in favor  
 "of its reduction to practice, but we have not been able  
 "to overcome the weight of one circumstance, which has an  
 "important bearing. . . . when we bear in mind all of the  
"limitations and requirements of the issue, which we have  
 "heretofore stated must be done. As we have seen an im-  
 "portant element of the invention of this issue is the re-  
 "quirement to give a longer period for pause and for il-

"illumination of the picture than is required for its displacement and the substitution of the one following and this period of pause and illumination is concurrent. The original machine was constructed with a shutter and that shutter remains a part of it. Such a shutter performs an important, if not necessary, function in a camera for taking pictures, but operates injuriously when the apparatus is used for their exhibition, as has been heretofore described. Practically it reduces the illumination period to that of the movement of substitution. . . .

"Recurring to the testimony, it does not appear that Latham had any idea of detaching this shutter in using the machine for exhibiting pictures. It is this condition that involves to a certain extent the question of the conception of the invention of the issue with that of his reduction to practice and renders it impossible for us to find that he has overcome the burden necessary to an award of priority over Armat".

The foregoing shows conclusively the truth of that which has been heretofore stated that the decision against Latham rests solely upon the fact that the Court did not consider that Latham had sufficiently proved his use of the machine in such specific manner that the period of illumination was coextensive with the period of pause.

As a matter of fact the Courts seems to have overlooked the positive statements of the record that the machine was built primarily as a projecting machine. That was all the inventor and his sons had in mind until some months after it was built, and as originally built and used on three or

four separate occasions for projecting, it had no shutter on it whatever. The shutter was not made until a number of weeks after the machine had been completed and successfully operated as a projecting machine, and it would seem as though the evidence was satisfactory on that point. The statement, therefore, that the machine was made for taking pictures is distinctly erroneous. All of Latham's witnesses agree that the machine was made in the first instance for projecting.

Also the statement that Latham does not appear to have detached the shutter is a mistaken one. There was no shutter to detach at the time he used it for a projecting machine.

Also the fact that Latham did not further use it for projecting, but continued to use it for taking pictures, was fully explained in the record. However, all this is past now.

Under the above state of facts, it would be a lamentable miscarriage of justice, if the decision in this interference, which went off on the illumination feature only, everything else being found for Latham, the applicant herein, and which was founded upon a mistaken conception of Latham's invention, should result in depriving him of claims for those things which as a matter of fact constitute his invention and which are of exceeding value in this art, if not of controlling value.

The Armat and Casler patents are particularly relied upon by the Examiner in rejection of the claims now presented. Neither of these patents claims the invention.

Consequently, Rules 75 and 76 apply and since the depositions in the interference case in the most conclusive manner satisfy the requirements of these rules, and as suggested by the Examiner at the personal interview referred to, applicant files herewith Latham's argument prepared by the Hon. Henry A. Seymour, before the Circuit Court of Appeals for the District of Columbia, together with Latham's printed interference record and he calls attention to pp. 18-42 of the brief, both inclusive.

Referring now to the references, the Armat and Casler patents have been disposed of as above. Neither of them can be properly cited to the claims now presented in this case. The decision of the Court of Appeals is as conclusive touching those things that make for Latham as it is touching those things which make for Armat. Latham cannot claim the interference issue, which is Armat's claim, nor can Armat and Casler be cited in view of the evidence in the interference case, against the Latham claims as they are now presented, for they do not claim any such thing. Latham is by concession and also by judicial finding first regarding the subject matter of these claims.

Latham's actual invention, as stated by Mr. Seymour in his brief before the Circuit Court of Appeals consists in the combination in a machine of the class stated of the dual sets of film supporting and moving mechanisms, one of them, the supply and take up reels which support and take care of the bulk of the film; the other the mechanism which makes and takes up the loops

at opposite sides of the exposure window and the intermittently acting device which intermittently moves or jerks the film from picture to picture across the exposure opening. Further detail regarding these two sets of mechanisms is set forth in specification to which reference is here made.

Claim 1. The Office cites the Armat and Casler patents in conjunction with the patent to Gray against this claim. It is respectfully contended that Armat and Casler are, for the reasons above set forth, improper references and as to the Gray patent, it will undoubtedly be conceded that it alone is not a pertinent reference, for the reasons stated in the last argument by applicant, but he will here say that the Gray patent comes too late. It is behind the time set by the Circuit Court of Appeals. This apparatus is inoperative, however, and under the well settled rule cannot be cited as an adequate reference. The specification distinctly declares that the pictures are taken in two series which are in different planes. It is therefore impossible for them to be in proper focal axis at the time of projection. Each alternate picture will be badly off-set upon the screen relative to the one that immediately precedes it; and this offset, although but slight during the taking process, is so multiplied when projection of the picture takes place that the pictures may not even overlap one another on the screen. But further than this note the order in which the pictures must inevitably be taken, which is as follows: 2, 4, 6, 1, 6, 3, 10, 5, 12,

14, and so on. This would produce a most extraordinary exhibition of objects in motion. The degree of motion would be agonizing.

Again the whole film will become light struck, there being no protection of the exposed or unexposed part. Also when projecting the rays of light from the two lamps cut across each other. This is impossible. The whole thing is inoperative.

Again frictional contact rollers are used to affect the intermittent movement, not as in some machines which are reasonably well operative in which the film is squeezed between two rollers, both of them mere feed rollers, but the feed rollers in Gray's machine bear against the supply roll itself at one side and against the take up reel at the other, and as has been fully pointed out in preceeding arguments, the slipping of the many convolutions of the film upon itself on the supply reel and the changes due to atmospheric conditions, will preclude the possibility of proper registration between these devices and Gray's intermittently acting hook-like devices, so that in a run of 50 or 100 pictures, the hooks will fail to register with the holes in the film. Particular attention is called to the fact that in applicant's case, his loop forming devices and the intermittently acting devices at the exposure window are declared to be, and in the claims stated to be separate and distinct from the supply and take up reels. The reason for this positive statement is that applicant's construction will work and the other will not, and appli-

55

cant's useful construction should not be rejected upon Gray's useless construction.

The Examiner suggests that "the only attempt made to distinguish from the construction shown in the above patents is the inclusion of positively actuated mechanisms" and holds that the use of the word "positively" in this connection is not sufficient to differentiate from the references. This is surely a mistake. Applicant's construction works and Gray's does not, and the reason is that Gray attempts to feed frictionally from the supply roll. This cannot be done. Applicant feeds by engaging the film in such manner that it cannot and does not slip. Consequently there is always reliable, accurate and satisfactory feeding of the film secured. Applicant's feeding devices are entirely separate and distinct from the supply and take up reels. They may be at a distance from the feeding devices, indeed, they need not be present at all. The film may be in a basket or in a pile on the floor. Applicant's feeding devices are in no way connected with or dependent upon the reels which support the bulk of the film. This is a controlling difference.

Claim 2. The Examiner cites the Armat and Casler patents alone against this claim. They are not proper references for the reasons above stated.

Claim 3. The same references as to Claim 1 are cited against this claim, to which applicant makes the same reply. The criticism concerning the words "takes care of it" has been corrected in the re-written claims below.

Claim 4. The references cited to Claim 1 are cited against this claim. Armat and Casler being removed, Gray alone remains and he has been considered above.

Claim 5. Jenkins & Armat, in view of Gray, are cited against this claim. Applicant's position will be best emphasized by asking where in these patents are to be found the devices which support the bulk of the film in combination with the positively driven devices separate and distinct from the film supporting devices and which respectively produce and take up slack film and cause its period of rest to exceed its period of movement? Armat & Jenkins have no such devices whatsoever and Gray's loop former is not separate and distinct from the supply and take up rolls; on the contrary, must necessarily make contact with them, whereby the slipping of the film is inevitable and lack of registration between the intermittently acting hooks and the holes in the films is likewise inevitable. However, as stated above, Gray comes too late and it is an inoperative device, for various reasons as heretofore pointed out.

The Edison patent is likewise cited to this claim, in conjunction with Armat's individual patent, and since that is not a proper reference, it is believed that the mere fact that Edison shows a sprocket wheel engaging with holes in a film is immaterial.

The remaining claims, excepting the 11th and 12th, which have been approved, are objected to because of that shown by Armat, Casler, Gray and Edison. It is believed

that it is unnecessary to further carry this matter through in detail. This applicant, Latham, was the very first in the history of this art to produce either a taking or a projecting machine in which the peculiar instrumentalities referred to, are employed constructed, combined and operating for the purpose of moving a delicate and valuable film in the manner stated. This improvement is one of great value and Latham is the fundamental inventor. This has been found judicially by the highest tribunal to which this case can come. To meet these claims there must pre-exist such an accurate description in the prior art as will clearly teach and promulgate that which he has produced. The subject matter of the claims he now presents originated with him. It is new and it is useful.

Concerning the claims, in order to meet the views of the Office, and for the convenience of all concerned, applicant amends by cancelling all of the claims heretofore presented and submits the accompanying re-written set. He also amends the specification as follows:

Substitute the word movement for the word "tension" in the 10th line of page 1 1/2 of the specification as last presented.

Insert the words although not essential after the words "it is desirable" in the 5th line of page 10 of the specification as last presented.

It is believed that the claims as now presented should be allowed.

## C L A I M S .

- C' 1. The combination with devices for supporting the bulk of a flexible film before and after exposure, of feeding mechanisms located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a pre-determined supply of slack, and the other adapted to intermittently feed the slack across the exposure window.
2. The combination with devices for supporting the bulk of the film before and after exposure, of feeding mechanism located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a pre-determined supply of slack, and the other adapted to intermittently feed the slack film across the exposure window, and constructed also to cause the intervals of rest of the film to exceed its intervals of movement.
3. The combination with devices which support the bulk of the film and supply it for exposure and receive it after exposure, of positively driven devices separate and distinct from the film supporting devices, located between them and at opposite sides of the exposure window, and which respectively engage with and accurately and uniformly feed the film, and which respectively produce and take up slack in it, and an intermittently acting device located between said last named devices which intermittently moves
- "

the slackened part of the film across the exposure window.

*based  
filing*

4. The combination with devices which support the bulk of a flexible strip or film and supply it for exposure and receive it after exposure, of positively driven devices separate and distinct from the film supporting devices ~~separate and distinct from the film supporting devices~~ and which engage the film and accurately compel its movement, and which feed the film by uniform and continuous rotary action, and an intermittently acting device located between said last named devices and which moves the slackened part of the film picture by picture across the exposure window and causes its period of rest to exceed its period of movement.

5. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively driven devices separate and distinct from the film supporting devices and located between them at opposite sides of the exposure window, and which engage the film and accurately insure its feeding, which last named devices respectively produce and take up slack in the film, and an intermittently acting device provided with teeth which engage in holes in the film whereby it feeds the film across the exposure opening.

6. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of a positively driven device entirely disconnected from the said film supporting devices

located between the film supplying device and the exposure window and which produces a loop of slack film, and an intermittently acting device which engages with the film and feeds the slackened part of it across the exposure window, and causes its period of rest to exceed its period of movement.

Sub D' 7. The combination with a flexible strip or film having continuous rows of equally spaced holes in its opposite edges, and devices which support the bulk of the film and supply it for exposure and receive it after exposure, of positively driven rotary devices located between and entirely disconnected from said supporting devices and at opposite sides of the exposure window, and which are provided with teeth arranged to accurately engage in the holes in the film and which respectively produce and take up slack in it, and an intermittently acting rotary feeding device also provided with teeth which accurately engage with the holes in the film whereby the film is intermittently fed across the exposure opening.

8. The combination with two reels which support the bulk of a flexible film, one of which supplies it for exposure and the other receives it after exposure, of a positively driven device separate and distinct from the said reels and located between the supply reel and the exposure window and which produces a loop of slack film, and an intermittently acting device likewise positively driven which moves the film picture by picture into the optical axis at the exposure window and causes each picture to

remain momentarily at rest in the optical axis.

9. The combination with two rotary reels which support the bulk of a flexible film, one of which supplies the film for exposure and the other coils it up after exposure, of two rotary feeding mechanisms located between said reels and separate and distinct from them, one constructed to feed the film intermittently and cause it to move picture by picture across the axis of the lens and to come to rest in said axis, the other constructed to feed the film continuously and uniformly and thus provide a constant supply of slack film and gearing positively connecting the said two feeding mechanisms for maintaining a fixed relation between them.

ab D<sup>2</sup> 10. The combination with a flexible strip or film provided with a series of holes, of two rotary reels which support the bulk of the film, one of which supplies the film for exposure and the other receives it after exposure, of two rotary feeding rollers located between said film supporting reels and separate and distinct therefrom, each provided with teeth for engaging the holes in the film, actuating mechanism and connecting gearing between said feeding rollers which positively actuates one of the feeding rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion, and which also positively actuates the other feeding roller continuously and thus provides a constant supply of slack film.

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11. The combination with the main shaft provided with a broken gear mounted in eccentric bearings and a feed drum whose shaft is provided with a broken gear which meshes with the first named broken gear, of means for adjusting said bearings to regulate the contact between said gears.

per D 12. The combination with the supporting standards and pivoted frames 57, 58, each provided with rollers, of tooth drum 39 and roller 55 between which the rollers of one of said frames normally rests, and toothed drums 46, 50 between which the rollers of the other frame normally rests, and means for imparting continuous motion to drums 39 and 46 and intermittent motion to drum 50, and a picture bearing strip adapted to engage with said drums and rollers.

Dated New York, July 16th, 1902.

103

Phillips Abbott.

Attorney for Applicant

1412

DIV. \_\_\_\_\_ Root 217.

ADDRESS ONLY  
THE COMMISSIONER OF PATENTS,  
WASHINGTON, D. C.

2-200.

R. L. L.

Paper No. 16 Letter.

ALL communications respecting this  
application should give the serial number,  
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

July 30, 1902.

Woodville Latham,

C/o Foster & Freeman,

931-F Street, N. W.,

Washington, D. C.

Please find below a communication from the EXAMINER in charge of your application.  
593,747, filed June 1, 1896, Apparatus for Projecting on a Screen  
Pictures of Moving Objects.

F. I. Allen.  
*[Signature]*  
Commissioner of Patents.

This action is in response to applicant's amendment filed  
July 13, 1902.

The title of invention should be changed to Projecting Kinetoscope.

Claims 7, 10, and 12 are objectionable for the reason that the film, which is the thing operated upon and which forms no permanent part of the apparatus, but is supplied by the user, is made a positive element of the combinations. The claims should be amended to set forth the apparatus as adapted to carry and feed the film, but the film itself should not be made a positive element.

Upon reconsideration it is held that, in view of the interference proceedings in this case, and in view of the changes which have been made in the claims by the last amendment, they may, as at present advised, be allowed, if amendment be made as above indicated.  
H.L.P.

E L Chapman

EXAMINER

Serial No. 593,747 Paper No. 17  
Amendt D  
Filed Aug. 2 1902

Claim 7, 10

Application of Woodville Latham  
Apparatus for Projecting upon a  
Room No. 217.  
Screen Pictures of Moving  
Objects.

Filed June 1, 1896.

Serial No. 593,747

Hon. Commissioner of Patents,  
Washington, D. C.

Dear Sir:-

In reply to the official letter of July 30th, 1902  
applicant amends as follows:

Substitute the words Projecting Kinetoscope, for the  
title of the invention as it now appears.

Cancel the present 7th and 10th claims and substitute  
the following re-written claims with the same numbers,  
which are drawn in compliance with the suggestions of the  
Examiner:

D'

7. The combination with devices adapted to support  
the bulk of a flexible film and supply it for exposure  
and receive it after exposure, of positively driven toothed  
rotary devices located between and entirely disconnected  
from said supporting devices and at opposite sides of the  
exposure window, said toothed devices being adapted to  
carry and feed the flexible film by the engagement of their  
teeth with equally spaced holes made in the edges of the  
film and to respectively produce and take up slack in the  
"f"

film, and an intermittently acting rotary feeding device also provided with teeth which engage with the holes in the film, whereby the film is intermittently fed across the exposure opening.

D<sup>2</sup>

10. The combination with two rotary reels adapted to support the bulk of a flexible film, one of which supplies the film for exposure and the other receives it after exposure, of two toothed rotary feeding rollers located between said film supporting reels and separate and distinct therefrom and adapted to carry and feed the film by the engagement of their teeth with equally spaced holes in the edges of the film, actuating mechanism and connecting gearing between said feeding rollers which positively actuates one of the feeding rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion and which positively actuates also the other feeding roller continuously and thus provides a constant supply of slack film.

Cancel the 12th claim. Since this claim relates merely to details of construction, applicant does not care to further delay the issuance of the case by any further consideration of it, and therefore cancels it.

Having complied with the suggestions of the Office, allowance is respectfully requested.

Dated New York, August 1, 1902.

Phillips Abbott

Attorney for Applicant.

415

Division.  
 communications should be addressed to  
 Commissioner of Patents,  
 Washington, D. C."

2-181.

Serial No. 593,747

DEPARTMENT OF THE INTERIOR,

U. S. Patent Office

Washington, D. C., Aug. 6, 1902

Woodville Latham Assor

c/o Foster & Freeman

City

SIR:—Your APPLICATION for a patent as IMPROVEMENT IN  
 Projecting cinematoscopes

Filed June 1, 1902, has been examined and ALLOWED.

The final fee, Twenty Dollars, must be paid, and the Letters Patent bear date as of a day not later than SIX MONTHS from the time of this present notice of allowance.

If the final fee is not paid within that period the patent will be withheld, and your only relief will be by a renewal of the application, with additional fees, under the provisions of Section 4897, Revised Statutes. The Office aims to deliver patents upon the day of their date, and on which their term begins to run; but to do this properly applicants must be expected to pay their final fees at least TWENTY DAYS prior to the conclusion of the six months allowed them by law. The printing, photolithographing, and engraving of the several patent parts, necessary to final signing and sealing, will consume the intervening time, and such work will not be done until after payment of the necessary fees.

When you send the final fee you will also send, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, the TITLE OF INVENTION AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If you desire to have the patent issue to ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this Office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of 5 cents each. The money should accompany the order. Postage stamps will not be received.

Respectfully,

F. J. Allen,  
 Commissioner of Patents.

After allowance, and prior to payment of the final fee, applicants should carefully scrutinize the description to see that their statements and language are correct, as mistakes not incurred through the fault of the office, and not affording legal grounds for rescission, will not be corrected after the delivery of the letters patent to the patentee or his agent.

the credit allowed is subject to the collection of the same.

1416

AMOUNT RECEIVED

2-397.

\$20--

✓  
CHIEF CLERK

MEMORANDUM

OF

FEE PAID AT UNITED STATES PATENT OFFICE.

(Be careful to give correct Serial No.)

Serial No. 593747

1896

INVENTOR:

Woodville Latham

PATENT TO BE ISSUED TO

NAME OF INVENTION, AS ALLOWED:

Projecting Kinetoscope

DATE OF PAYMENT:

August 7 - 1902

FEE:

\$20<sup>00</sup>

DATE OF FILING:

June 1 - 1896

DATE OF CIRCULAR OF ALLOWANCE:

August 6, - 1902

The Commissioner of Patents will please apply the accompanying fee as indicated above.

\_\_\_\_\_  
Foster & Freeman

Attorney

SEND PATENT TO

Box 93 Issue Div

102

B

In the matter of the patent to  
Woodville Latham, No. 707,934, dated  
August 26th, 1902, assigned to E. &  
H. T. Anthony & Company by mesne as-  
signments.

Hon. Commissioner of Patents,  
Washington, D. C.

Dear Sir:-

Under the provisions of Rule 170 I respectfully request a certificate of error as provided in that rule, to be officially made and attached to the records and to the copies of the patent issued from the Office. The original patent will be returned for the attachment of the certificate thereto as soon as action shall be taken upon this petition.

This petition is presented because the patent as issued is not in accord with the record for that:

At line 47, page 3, the numeral 59 should appear immediately after the words "the removable rods";

At line 61, page 3, the word below should be substituted for the word "above";

At lines 2 and 3, page 4, the word actuates should be substituted for the word "actuated";

At line 21, page 5, the words to the should be substituted for the word "and".

Dated New York, August 28th, 1902.

Phillips Abbott  
Attorney for Applicant.  
Woodville Latham and  
for E & H. T. Anthony & Co  
the assignees.

1418

B

In the matter of the patent to  
Woodville Latham, No. 707,934, dated  
August 26th, 1902, assigned to E. &  
H. T. Anthony & Company by mesne as-  
signments.

Hon. Commissioner of Patents,  
Washington, D. C.

Dear Sir:-

Under the provisions of Rule 170 I respectfully request  
a certificate of error as provided in that rule, to be  
officially made and attached to the records and to the  
copies of the patent issued from the Office. The original  
patent will be returned for the attachment of the certifi-  
cate thereto as soon as action shall be taken upon this pe-  
tition.

This petition is presented because the patent as issued  
is not in accord with the record for that:

At line 47, page 3, the numeral 59 should appear immed-  
iately after the words "the removable rods";

At line 51, page 3, the word below should be substitut-  
ed for the word "above";

At lines 2 and 3, page 4, the word actuates should be  
substituted for the word "actuated";

At line 21, page 5, the words to the should be sub-  
stituted for the word "and."

Dated New York, August 28th, 1902.

Phillips Abbott  
Attorney for Applicant.  
Woodville Latham  
& for E. & H. T. Anthony & Co  
the assignees

1419

DEPARTMENT OF THE INTERIOR,  
UNITED STATES PATENT OFFICE,  
WASHINGTON, D. C.

SEPTEMBER 3, 1902.

HON F.I. ALLEN,

COMMISSIONER OF PATENTS.

Sir:

In the matter of Letters Patent No. 707,934, issued August 26, 1902, upon the application of Woodville Latham, for an improvement in Projecting-Kinetoscopes, the attorney alleges certain departures from copy as follows:

- 1st: In line 47, page 3, the numeral "59" should appear after the words "the removable rods."
- 2nd: In line 61, page 3, the word "above" should read below.
- 3rd: In lines 2 and 3, page 4, the word "actuated" should read actuates.
- 4th: In line 21, page 5, the word "and" should read to the.

A careful examination of the papers in the case shows that the printer followed the copy in every instance. The copy is in an amendment filed January 22, 1902, bearing the heading "Rewritten Specification and Claims as of January 17, 1902" and is signed "Phillips Abbott, Atty for Applt, Jan'y 20, 1902" and is plainly type-written.

The attorney asks for a certificate of correction under the provisions of Rule 170. The papers in the case are respectfully submitted for instructions.

Very respectfully,

S. M Pool

///

Acting Chief Issue and Gazette Division.

1420

Department of the Interior,  
United States Patent Office,  
Washington, D. C.

September 4, 1902.

Mr. Phillips Abbott,  
206 Broadway,  
New York, N. Y.

Sir:

Your letter of the 28th ultimo is received, calling attention to certain alleged errors in the printed specification of the patent to Woodville Latham, No. 707,934, and asking that a certificate correcting them be endorsed upon the patent, under Rule 170. An examination of the record shows that the patent does not depart from the record in the respects indicated by you, but is a correct copy of the re-written specification filed by you on January 22, 1902. Your request must therefore be denied.

Respectfully,

F. I. Allen.

Commissioner.

//2

No. 707,934.

Patented Aug. 26, 1902.

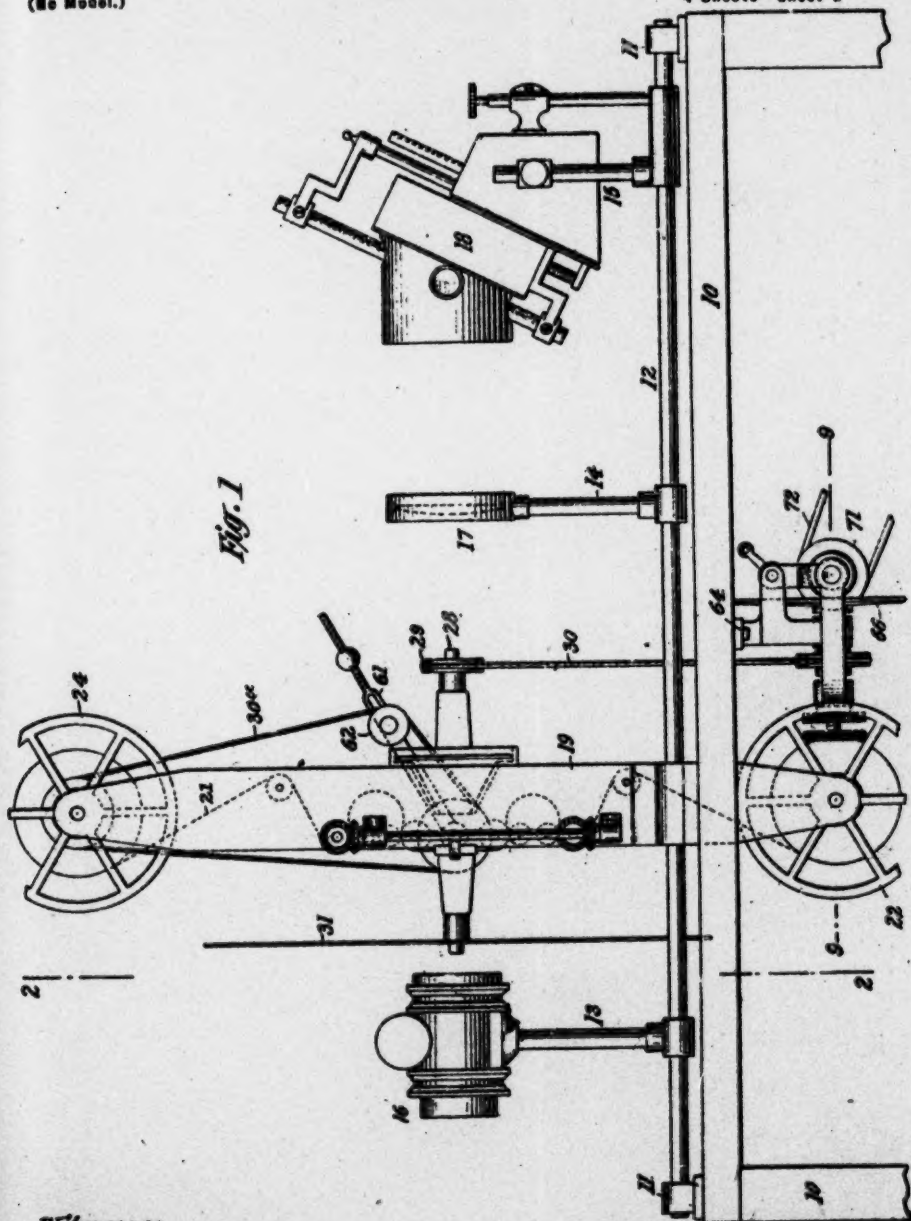
W. LATHAM.  
PROJECTING KINETOSCOPE.  
(Application filed June 1, 1898.)

2421

(No Model.)

4 Sheets—Sheet 1.

Fig. 1



Witnesses  
Raphael Vetter  
J. M. Brown

Inventor  
Woodville Latham

1422

W. LATHAM.  
PROJECTING KINETOSCOPE.

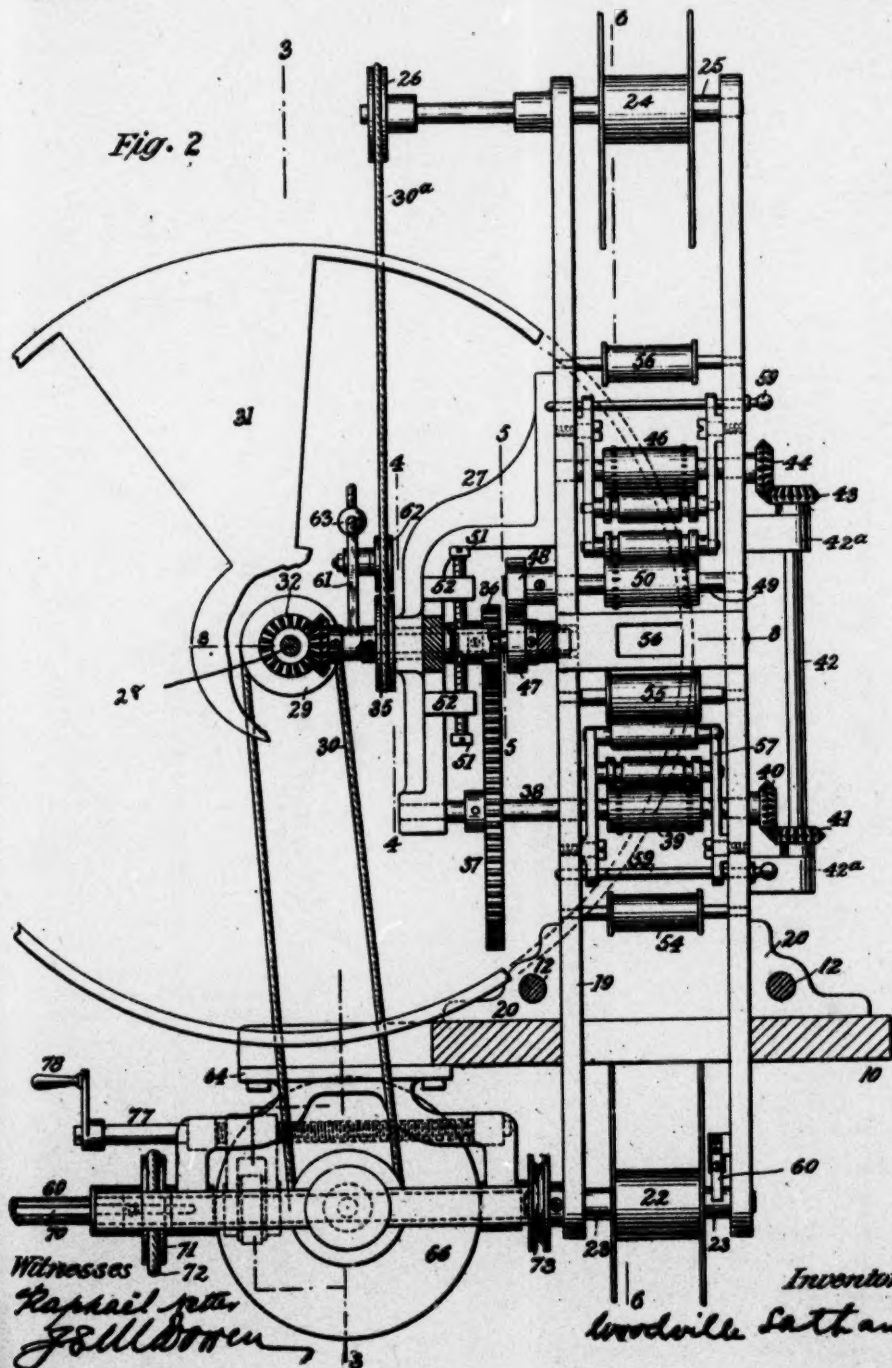
(Application filed June 1, 1900.)

423

(No Model.)

4 Sheets—Sheet 2.

Fig. 2



Witnesses  
Raphael  
J. M. Brown

Inventor  
Woodville Latham

1424

W. LATHAM.  
PROJECTING KINETOSCOPE.

(Application filed June 1, 1898.)

425

4 Sheets—Sheet 3.

(No Model.)

Fig. 3

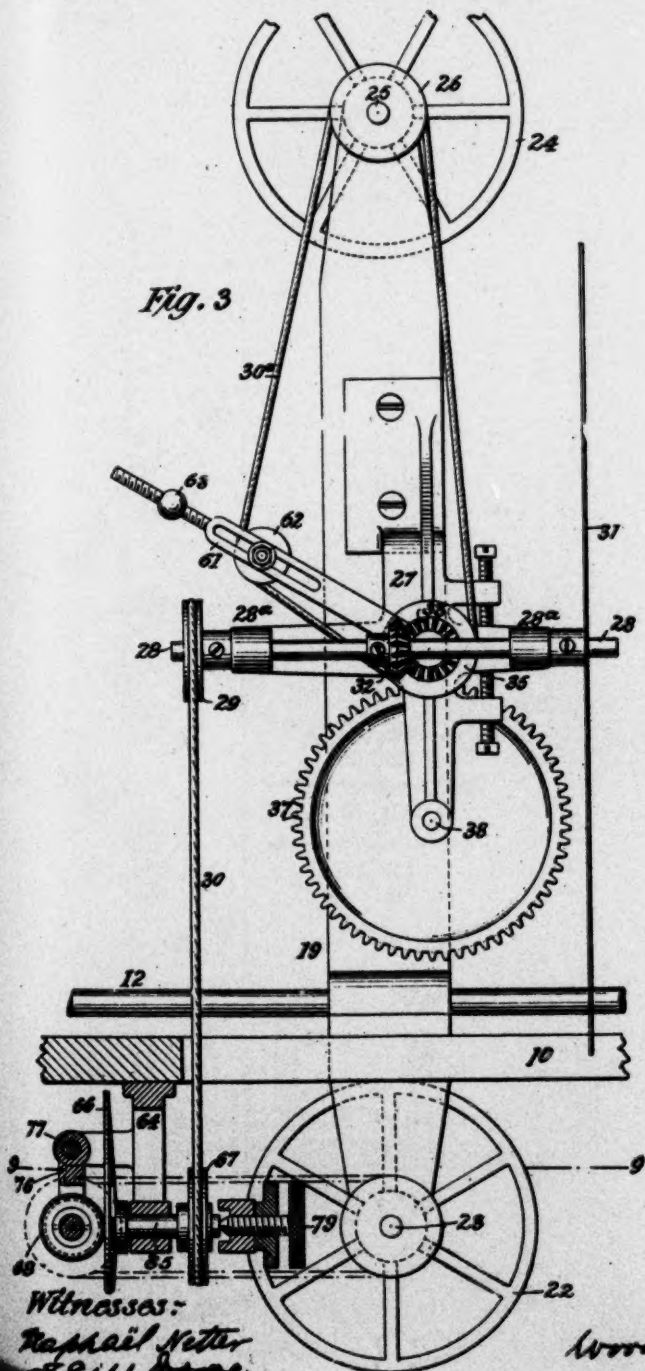


Fig. 4

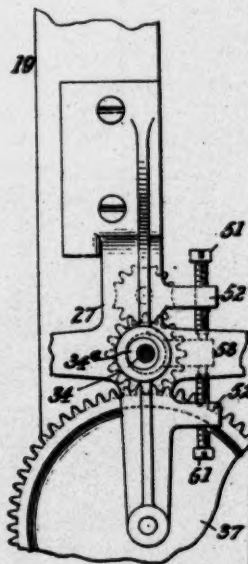
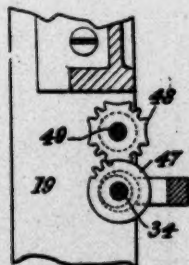


Fig. 5



Witnesses:

Raphael Vetter  
S. M. Brown

Inventor

Woodville Latham

1426

No. 707,934.

Patented Aug. 26, 1902.

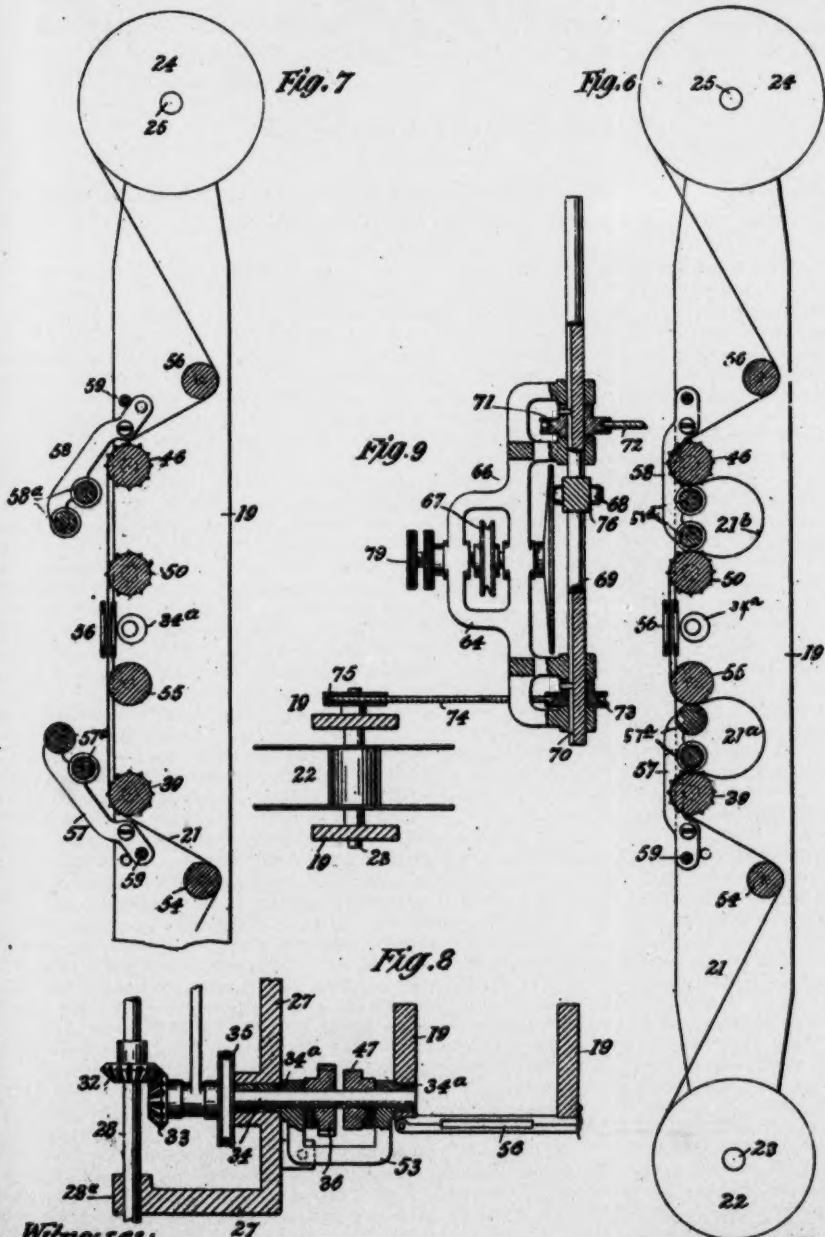
W. LATHAM.  
PROJECTING KINETOSCOPE.

(Application filed June 1, 1900.)

(No Model.)

4 Sheets—Sheet 4.

1477



Witnesses:  
Rosa M. Nether  
J. M. Brown

Inventor  
Woodville Latham

1428

# UNITED STATES PATENT OFFICE.

WOODVILLE LATHAM, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO E. & H. T. ANTHONY & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## PROJECTING-KINETOSCOPE.

**SPECIFICATION** forming part of Letters Patent No. 707,934, dated August 23, 1902.

Application filed June 1, 1898. Serial No. 593,747. (No model.)

*To all whom it may concern:*

Be it known that I, WOODVILLE LATHAM, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful improvements in Projecting-Kinetoscopes, of which the following is a specification.

The present invention has reference to apparatus for projecting successively and at frequent intervals on a screen or other plane surface an extended series of photographs of moving objects, whereby the movement of the objects may be accurately exhibited.

The purpose of the invention is to provide an apparatus capable of continuously projecting or exhibiting upon a suitable surface a great number of pictures taken from moving objects and arranged upon a strip or film of great length, whereby each picture in the strip is brought to rest at the moment of projection, so that there is given to the eye an impression of objects in motion in a manner now well understood.

In an apparatus organized so that the picture-bearing strip is caused to move continuously and uninterruptedly across the optical axis a light of very high intensity is necessary to give satisfactory results; but a light of such power is not required for satisfactory projection by means of an apparatus embodying the principle of the present invention. The stoppage of each picture during its exposure permits the requisite quantity of light to pass through the condenser, the picture, and the objective to the screen or plane surface upon which the image is projected when the light employed is only of a moderately-high power.

The invention therefore consists in an apparatus for projecting successively a large number of pictures of moving objects, embodying, among other things, means for bringing each picture to rest at the moment of projection, means for reducing the strain the picture-film would otherwise suffer from the rapid interruption and renewal of its movement, and means for maintaining uniformity of movement of the film as it unwinds from the delivering-reel and as it winds upon the

receiving-reel, all as set forth in the claims 50 at the end of this specification.

In the accompanying drawings, which form part of this description, one form of apparatus embodying the invention is illustrated.

In the drawings like features are designated in the several figures by like numerals of reference.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a cross-section on the line 2 2 of Fig. 1, partly broken away. Fig. 3 is a section on broken line 3 3 of Fig. 2 looking toward the machine. Fig. 4 is a fragmentary section on line 4 4 of Fig. 2. Fig. 5 is a similar section on the line 5 5 of Fig. 2. Fig. 6 is a vertical section through the machine, showing the slack in the film, taken on the line 6 6 of Fig. 2. Fig. 7 is a similar section showing the devices for pressing the film into contact with the guide-rollers and drums thrown out of action. Fig. 8 is a sectional view on the line 8 8 of Fig. 2; and Fig. 9 is a section on the line 9 9 of Figs. 1 and 3 through the power-transmitting appliances, showing the relation of the parts when winding back the film to the delivering-reel.

The several parts of the apparatus may be mounted upon an optical bench (indicated in the drawings at 10) of any convenient design. At the ends of the bench 10 are the brackets 11, furnishing supports for the pair of longitudinal rods 12, upon which are mounted the standards 13 14 15, said standards being bifurcated to connect with the rods 12. The standard 13 supports a projecting-lens or an ordinary objective 16, which may be readily adjusted to bring it in proper relation to the picture being projected, and standard 14 supports the condensing lens or lenses 17, while the standard 15 supports the lamp 18, which in this instance is shown as a focusing arc-lamp. The lamp 18 is preferably adjustable on its support both vertically and laterally, and the standards for the condensing-lens and the lamp are so constructed that they may be adjusted longitudinally on the rods 12 so as to obtain the proper relative relation between the lamp and the condenser and the condenser and the picture-strip. The mech-

anism for supporting and propelling the shutter and the picture-bearing strip is arranged above and below the optical bench 10 on standards 19, which extend vertically above the bench and for a short distance beneath and are braced by the brackets 20, which also furnish bearings for the longitudinal rods 12, as seen in Fig. 2. The picture-bearing strip or film, which may be of any desired length without in any way affecting the operation of the machine, is indicated at 21 in the several views. It is wound upon the delivering-reel 22, the shaft of which, 23, is journaled in the lower ends of the standards 19. The receiving-reel 24 is similarly mounted at the top of standards 19, its shaft 25 having bearings in said standards and being extended at one side beyond the standard to receive a pulley 26 for the belt 30, transmitting the motion of the driving-shaft to the receiving-reel. The function of these two reels is merely to support the bulk of the film while successive sections of it are subjected to the feeding and exposing mechanism. One of the reels supplies the film for exposure, and the other coils up and takes care of the film after exposure. The picture-bearing strip 21 is conducted through and over its guiding and controlling mechanism, mounted in standards 19, and secured to the hub of reel 24. The said strip when in the position it is caused to assume when the apparatus is projecting has two slack sections contiguous to the sprocketed feed-drums for the purposes presently explained.

To one side of the standards 19 there is fixed a bracket 27, in which the main shaft 28 is mounted in bearings 28<sup>a</sup>. At one end of this shaft 28 there is keyed a pulley 29 to receive the driving-belt 30, and at its opposite end is fixed the hub of the shutter 31. On the main shaft 28 is keyed the bevel-gear 32, which meshes with a bevel-gear 33, fixed to the end of shaft 34, which revolves in bearings 34<sup>a</sup> in bracket 27 and adjacent standard 19, the revolution of the shaft 28 being thereby transmitted to shaft 34. The shaft 34 has keyed to it a pulley 35, which receives the belt 30<sup>a</sup>, transmitting motion to the receiving-reel, and it has also keyed to it the small gear-wheel 36, which engages with the large gear-wheel 37, keyed to shaft 38, having bearings in bracket 27 as well as in standards 19, said shaft carrying the toothed drum 39 and having keyed to its outer end a bevel-gear 40, which meshes with another bevel-gear 41, fixed to the upright shaft 42, supported in brackets 42<sup>a</sup> on standard 19, and having at its upper end a bevel-gear 43, which meshes with a like gear 44 on the end of shaft 45, which carries a toothed drum 46 and has bearings in standards 19. By this mechanism the toothed drums 39 and 46 are caused to revolve continuously at a uniform rate when power is communicated to the main shaft 28. It is obvious that other forms of gearing may be employed

to drive said toothed drums 39 and 46 in unison. Shaft 34 has also keyed to it broken gear 47, Fig. 5, which is adapted to engage with a broken gear 48, fixed to shaft 49, having bearings and standards 19 and carrying a toothed drum 50. The gear 48 on the shaft of drum 50 is provided with a series of four toothed sections and a series of four plain sections, the surfaces of the latter being made to conform to the toothless portion of the circumference of the broken gear 47, so that while the gear 47 revolves continuously it intermeshes with gear 48 only momentarily as it completes each revolution, moving the gear 48 intermittently, and thus producing momentary stoppage of the drum 50 once with each complete revolution of shaft 34. At the moment of stoppage of the drum 50 the smooth surfaces of the gears are in sliding contact and remain so until the shaft 34 completing another revolution the teeth of the two gears again intermesh, revolving the drum 50 one-fourth of a revolution, and so on continuously, said drum momentarily stopping as the picture-bearing strip is moved through the apparatus the length of one picture, thus bringing each picture to rest at the moment of projection, and hence in a device of the construction described the period of rest of the film is four times greater than its period of movement. To prevent any vibration of the picture at the moment of projection, the smooth surfaces of the broken gears 47 and 48 should preferably be held in close sliding contact, and with this end in view the bearings 34<sup>a</sup> 34<sup>a</sup> (see Figs. 4, 5, and 8) of the shaft 34 are made eccentric, so that by means of the adjusting-screws 51 51, passing through lugs 52 on bracket 27 and bearing at their points on opposite sides of the yoke 53, connected to or formed with said bearings, the shaft 34 may be slightly raised or lowered, as required. This mode of adjustment has been found in practice to be efficient and to satisfactorily answer the purposes intended.

Because of the rapid interruption and resumption of the movement of the picture-film it is necessary to provide means for reducing the strain on the same to prevent its being ruptured by the teeth of the sprocket-drum 50, which actuates or feeds the film intermittently by engaging in holes at its edges, and it is also necessary or desirable to provide means for maintaining uniformity of tension of the film as it unwinds from the delivering-reel and winds upon the receiving-reel. The manner whereby these objects are effected will now be described.

The numerals 54, 55, and 56 indicate rollers for supporting and guiding the picture-bearing strip 21 and are arranged to freely revolve on fixed shafts supported in the standards 19. The picture-bearing strip or film 21, which has photographically produced upon it a series of pictures representing the successive stages or positions of the moving object or ob-

fects to be reproduced, is conducted from the delivering-reel 22 over the guide-roller 54, toothed or sprocketed drum 39, guide-roller 55, past exposure-window 56, which is attached to the standards 19 in the line of the optical axis of the apparatus, toothed drums 50 and 46, and guide-roller 58 to the receiving-reel 24, to the hub of which its end is secured. The strip or film is perforated at regular intervals along its lateral edges to correspond exactly with the sprocket-like teeth arranged on the circumference of the drums 39, 46, and 50, near their ends, respectively.

In Fig. 6 the parts of the mechanism for controlling and guiding the picture-bearing strip or film, as well as the strip itself, are in position for projecting, and in Fig. 7 the parts are shown in the position they are made to assume when the picture-bearing strip is being wound back from the receiving to the delivering reel.

To secure the necessary engagement between the picture-bearing strip 21 and the feeding-drums 39, 46, and 50, so that the strip may be fed or moved with greater accuracy and certainty, the frames 57 and 58, pivoted, as shown, to the standards 19, are provided, and they are supplied with the freely-revolving rollers 57\* and 58\*. (See Fig. 7.) The rollers 58\*, carried by frame 58, are adapted to cooperate with the toothed drums 46 and 50, and they have circumferentially near their ends grooves, as shown in Fig. 2, to receive the teeth or sprockets of said feed-drums when the frame is fixed in the position it occupies when the apparatus is projecting, and the rollers 57\* of frame 57, one of which cooperates with toothed drum 39, are similarly constructed for the same reason, the upper roller 57\*, which coacts with the toothless guide-roller 55, being grooveless on its circumference. The frames 57 and 58 are held in the two positions which they are adapted to occupy, as in Fig. 6 when projecting or as in Fig. 7 when the picture-bearing strip is released so as to be wound back from the upper to the lower reel by the removable rods which pass through suitable holes in the standards 19 and engage with the ends of the frames, as shown in Figs. 6 and 7. When in the position shown in Fig. 6, the rollers carried by frame 57 are between the sprocket-drum 39 and the guide-roller 55, while the rollers carried by frame 58 are between the sprocket-drums 46 and 50. Within the planes occupied by the two sets of rollers 57\* and 58\* when the apparatus is adjusted for projecting—i. e., when in operation—the film or picture-bearing strip 21 is thrown out in the form of a loop, as shown at 21\* 21\*, one of these slack portions being at one time above window 56\* and the other at another time above the same. The extent of each of said slack portions is preferably that of the height of a picture or slightly more. It will be understood from the description that follows that the loops of slack below and above the ex-

posure-window are alternately thrown out and then taken up by the operation of the sprocket-drums, respectively, and that they produce and take up the slack by their own positive action entirely independent of the film-supporting reels at the extremes of the apparatus. In the operation of the machine the rollers 57\* 58\* hold the strip in proper contact with the respective feed-drums and guide-roller 55, as will be understood from Fig. 6, and insure proper contact between the strip and the respective drums. The picture-bearing strip is carried through the apparatus with great rapidity, and because of the rapid interruption and resumption of its movement it would not be possible for the strip to withstand the strain brought upon it for any considerable time if there were not provision made for the slacks in the film, as just explained. The instant each picture of the strip is brought in the line of the optical axis the toothless surfaces of the broken gears 47 48 are in sliding contact, their respective cogs being out of engagement, with the effect of causing stoppage of revolution of the toothed drum 50 and consequent momentary stoppage of the film between said toothed drum 50 and the toothless roller 55 beneath the optical axis; but the revolution of shaft 38 being continuous the toothed drums 39 and 46, which latter is positively geared from said shaft, as explained, also revolve continuously, taking up the slack between toothed drums 46 and 50 and also replacing the slack 21\* between toothed drum 39 and roller 55, thus restoring the slack 21\*, to be again taken up when the broken gears 47 48 again momentarily intermesh. It will thus be seen that as the slack 21\* is taken up at the moment of stoppage of the toothed drum 50 the slack 21\* is simultaneously being restored, and this action is continuous and positive and independent of the other parts of the machine while the operation of projection is going on. There is therefore but little, if any, additional strain on the film incident to the rapid interruption and resumption of its movement through the apparatus.

The construction and operation of the devices which produce and take up the loops of slack film and also those which intermittently feed or, so to speak, "jerk" the film from picture to picture across the exposure-window or axis of the lens form an exceedingly important part of this invention. It will be noted that they are entirely separate and distinct from the reels which support the weight of the bulk of the film and which are consequently relatively heavy, so that the length and consequent weight of the film may be indefinitely extended without affecting the operation of the machine. The intermittently-feeding devices, on the other hand, which comprise only the broken gear 48 and the feed-drum 50 with its shaft, are very light, and consequently have very little

inertia, and since also the small portion of the film which this part of the apparatus actuated has scarcely any weight these parts will instantly stop and start with great rapidity and with a minimum of strain or jar upon the mechanism and with the least possible wear on the holes for the sprocket-teeth in the film, and in order that the slack may be formed and the intermittent movements across the optical axis effected with accuracy and certainty it is desirable, although not essential, that the rollers which effect these movements be provided with the sprocket-teeth shown or their equivalent, so that they may positively engage with the film and positively move it without the possibility of any slipping, which is apt to occur when frictional contact alone is relied on, because such slipping will preclude proper registration between the picture and the optical axis. In order that these parts may operate as described, it is essential that the loop of slack film be maintained at all times ready for the intermittingly-acting device and also that the slack-manipulating and the intermittingly-moving devices be positively driven by mechanism which will absolutely insure the presence of the slack and the accurate movement of the film. The reason these parts and their arrangement and method of operation are such important and valuable features of the invention is because their action is necessarily exceedingly rapid, and if the intermittingly-feeding mechanism were heavy, so as to have much inertia, or if any considerable portion of the film or either of the reels which support it were stopped and started at each transition from picture to picture there would be such strain brought to bear on the sprocket-holes in the film as would speedily tear it adjacent to such holes, thus ruining it, and since these films are expensive, a good one being capable of making large profits for its owner, any means which will prolong their life is of great value in this art.

Another feature peculiar to my invention and one which distinguishes it from certain other apparatus is the important fact that the intermitting feed devices and the slack-former being entirely separate and distinct from the other parts are alone relied upon for securing accurate registration of the successive pictures with the axis of the projecting-lens. The supply and colling reels at the extremes of the machine may operate with only substantial accuracy and still the results will be satisfactory, because they have nothing to do except to properly support and take care of the film, supplying it at one side and taking it away at the other. The intermitting feed devices and the slack-producing devices, on the other hand, which lie between the two reels and immediately adjacent to the exposure-window, control and manipulate that special and limited part of the film which is at that instant relied upon for the desired results, and it is a comparatively

easy matter to accomplish exactness in operation when this part of the mechanism is separate and distinct from the other.

Uniformity of tension of the film as it unwinds from the delivering-reel, to prevent the film from buckling and insure its proper entrance to the apparatus, is secured by any suitable friction device applied to the shaft 23 of said reel. In the drawings is shown a metallic strap with an adjusting-screw for this purpose. This friction device is indicated by 60.

The rate of winding of the picture-bearing strip upon the receiving-reel is regulated by automatically controlling the revolution of the reel by means of the idler 61, which is shown loosely journaled on shaft 34. The idler is provided with a slot, as shown, in which is adjustably fixed roller 62, and around this roller is passed the belt 30. By adjusting roller 62 in the slot the pressure on the belt is varied. As the reel 24 becomes larger by the winding of the film thereon the idler may be manipulated to loosen the belt 30 and to cause it to slip on pulley 26 of the reel-shaft. This slipping is or may be a continuous one from beginning to end of the operation of the machine, but it is such a gentle slipping that no appreciable heat is produced and no appreciable wearing of the belt. The outer end of the idler is screw-threaded and provided with a weight 63, by means of which a nicer adjustment of the pressure exerted by the idler is obtained. By this means the rate of revolution of the receiving-reel is automatically maintained in proper correspondence with that of the feed-drum 46.

The shutter 31, carried by the shaft 28, has but a small solid section. Its use is to cover the film during the interval of movement of each picture.

The power may be imparted to the main shaft 28 through a friction regulating and controlling appliance attached to the bottom of the optical bench by means of the bracket 64. In this bracket is journaled the shaft 65, carrying at one end a friction-plate 66 and having keyed to its opposite end a pulley 67, adapted to receive the belt 30, which passes over pulley 29 on the main shaft 28. The friction-plate 66 cooperates with a friction-roller 68, keyed to shaft 69, the said shaft having a longitudinal groove 70 and being provided with pulley 71, receiving the belt 72 to the motor, and also with pulley 73, adapted to receive belt 74, (see Fig. 9,) which is made use of to transmit the power of the motor to the delivering-reel when winding back the film from the receiving-reel, the shaft of said reel being provided with pulley 75 to receive said belt. The pulleys 71 and 73 are connected to shaft 69 by feather's entering the groove of said shaft, as shown in Fig. 9, so that while these pulleys cannot turn on the shaft the shaft can be moved through the hubs of the pulleys, which is done when ad-

justing the friction-roller 68 with relation to the friction-plate 66. The hub of the friction-roller is connected by an arm 76, having a screw-threaded sleeve through which passes a screw-threaded shaft 77, supported in bracket 64 and adapted to be turned by crank 78 to permit the adjustment of the friction-roller toward or from the center of the friction-plate to increase or diminish the rate of speed of the friction-plate shaft 65 in a manner well understood, the rate of speed of the main shaft 28, connected to the friction-plate shaft 65 through belt 30, being thus determined and regulated as desired. The pressure of the friction-plate 66 against the friction-roller 68 is regulated by means of the milled-head screw 79, the point of which enters a depression in the end of the friction-plate shaft, as shown in Fig. 3. In Fig. 9 the friction-speed-regulating appliances are shown adjusted for winding back the film from the receiving and delivering reel, the friction-roller 68 having been shifted across the center of the friction-plate so as to reverse the revolution of the shaft 65. When winding back the film, the pulleys 73 and 75 are connected by belt 74 and the frames 57 58 are swung back, as shown in Fig. 7, so as to relieve the film of all binding tension.

The reels may be of size suitable to carry any length of picture-bearing strip that may be desired.

In operating the apparatus power is transmitted from the motor (not shown) by belt 72 and through friction-plate shaft by belt 30 to main shaft 28 of the apparatus. The operation of the gearing and the manner in which the teeth of the feed-drums engage the perforations in the edges of the picture-bearing strip and move it from the delivering to the receiving reel and across the opening 56 in the line of the optical axis of the apparatus, with a momentary stoppage of the film crossing the optical axis as the central portion of each picture is brought in the line of the optical axis, will all be understood from the preceding description. Whenever the central portion of a picture is in the line of the optical axis and the picture comes to rest, the light will pass simultaneously through the condensing-lens, through the picture, and through the objective outward to the screen or other plane surface. The light of course must be so adjusted as to cover the whole of the picture. The pictures are projected successively with such great rapidity, each succeeding picture showing a slightly-advanced stage of motion, that the effect on the eye of the observer is exactly the same as if a moving object or objects were being looked at directly.

It is to be understood that many of the mere details of the apparatus herein described may be varied without departing from the principle of my invention—as, for example, while the mechanism shown and described for forming the slack in the film and causing the picture-bearing strip to travel in such

manner that there is a real stoppage of the film as each picture is presented in the line of the optical axis is the form and character preferred by me, it is obvious that the principle of the invention may be retained with differently-organized gearing and the employment of other appliances than those shown and described.

Having described my invention, I claim as new—

1. The combination with devices for supporting the bulk of a flexible film before and after exposure, of feeding mechanisms located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a predetermined supply of slack, and the other adapted to intermittently feed the slack across the exposure-window.

2. The combination with devices for supporting the bulk of the film before and after exposure, of feeding mechanisms located between the devices for supporting the film and separate and distinct therefrom, one of said feeding mechanisms being constructed to uniformly feed the film and produce a predetermined supply of slack, and the other adapted to intermittently feed the slack film across the exposure-window, and constructed also to cause the intervals of rest of the film to exceed its intervals of movement.

3. The combination with devices which support the bulk of the film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices, located between them and at opposite sides of the exposure-window, and which respectively engage with and accurately and uniformly feed the film, and which respectively produce and take up slack in it, and an intermittently-acting device located between said last-named devices which intermittently moves the slackened part of the film across the exposure-window.

4. The combination with devices which support the bulk of a flexible strip or film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices and which engage the film and accurately compel its movement, and which feed the film by uniform and continuous rotary action, and an intermittently-acting device located between said last-named devices and which moves the slackened part of the film picture by picture across the exposure-window and causes its period of rest to exceed its period of movement.

5. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively-driven devices separate and distinct from the film-supporting devices and located between them at opposite sides of the exposure-window, and which engage the film

and accurately insure its feeding, which last-named devices respectively produce and take up slack in the film, and an intermittently-acting device provided with teeth which engage in holes in the film whereby it feeds the film across the exposure-opening.

4. The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of a positively-driven device entirely disconnected from the said film-supporting devices located between the film-supplying device and the exposure-window and which produces a loop of slack film, and an intermittently-acting device which engages with the film and feeds the slackened part of it across the exposure-window, and causes its period of rest to exceed its period of movement.

7. The combination with devices adapted to support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively-driven toothed rotary devices located between and entirely disconnected from said supporting devices and at opposite sides of the exposure-window, said toothed devices being adapted to carry and feed the flexible film by the engagement of their teeth with equally-spaced holes made in the edges of the film and to respectively produce and take up slack in the film, and an intermittently-acting rotary feeding device also provided with teeth which engage with the holes in the film, whereby the film is intermittently fed across the exposure-opening.

8. The combination with two reels which support the bulk of a flexible film, one of which supplies it for exposure and the other receives it after exposure, of a positively-driven device separate and distinct from the said reels and located between the supply-reel and the exposure-window and which produces a loop of slack film, and an intermittently-acting device likewise positively driven which moves the film picture by picture into the optical axis at the exposure-window and causes each picture to remain momentarily at rest in the optical axis.

9. The combination with two rotary reels which support the bulk of a flexible film, one of which supplies the film for exposure and the other coils it up after exposure, of two rotary feeding mechanisms located between said reels and separate and distinct from them, one constructed to feed the film intermittently and cause it to move picture by picture across the axis of the lens and to come to rest in the axis, the other constructed to feed the film continuously and uniformly and thus provide a constant supply of slack film and gearings positively connecting the said two feeding mechanisms for maintaining a fixed relation between them.

10. The combination with two rotary reels adapted to support the bulk of a flexible film, one of which supplies the film for exposure and the other receives it after exposure, of two toothed rotary feeding-rollers located between said film-supporting reels and separate and distinct therefrom and adapted to carry and feed the film by the engagement of their teeth with equally-spaced holes in the edges of the film, actuating mechanism and connecting-gearing between said feeding-rollers which positively actuates one of the feeding rollers so as to feed the film intermittently and cause its interval of rest to exceed its interval of motion and which positively actuates also the other feeding-roller continuously and thus provides a constant supply of slack film.

11. The combination with the main shaft provided with a broken gear mounted in eccentric bearings and a feed-drum whose shaft is provided with a broken gear which meshes with the first-named broken gear, of means for adjusting said bearings to regulate the contact between said gears.

Signed at New York, in the county and State of New York, this 25th day of May, 1896.

WOODVILLE LATHAM.

Witnesses:

J. E. M. BOWEN,  
ALEXIS C. SMITH.

1896

## C O N T E N T S:

- 1/2 Application 1 papers/.
1. Rejection July 9, 1896
  2. Rev of Power of Atty July 14 '96
  3. Notice of Rev. July 18-1896
  4. Power of Atty by Assee Dec. 23 '96
  5. Notice of Acceptance Dec 24-96
  6. Interference Jan'y 23d 1897
  7. Asso Power of Atty Dec 2, 1899
  - 7 1/2 Rev. Power of Atty Jan'y 18, 1900
  8. Asso Power of Atty Mch, 23, 1900
  9. Amendt A March 23, 1901
  10. Power of Atty Mch 27, 1901
  11. Rej. April 12-1901
  12. Amendt B Jan 21, 1902
  13. Rejection Feb. 18-1902
  14. Asso Power of Atty July 18, 1902
  15. Amendt C July 18, 1902
  16. Letter July 30, 1902
  17. Amendt D Aug. 2, 1902

## T I T L E:

Improvement in Projecting  
Kinetoscopes



**Defendants' Exhibit 45.**

4309

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS Co.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
Co. OF AMERICA,  
Defendant.In Equity,  
No. 5-167.

4310

COMPLAINANT'S EXHIBIT.

**Decision of Board of Examiners-in-  
Chief in Armat Interference.**

No. 22185.

U. S. Patent Office, Oct. 17, 1899.

Before the examiners-in-chief on appeal.

4311

In the matter of the interference between the application of Woodville Latham, filed June 1, 1896; the application of Herman Casler, filed February 26, 1896, and the application of Thomas Armat, filed February 19, 1896. Interference No. 18461. Improvement in apparatus for projecting on a screen pictures of moving objects.

Mr. J. E. M. Bowen for Latham.

Messrs. E. M. Marble & Sons and John T. Easton  
for Casler.

Mr. Thomas Armat for himself.

The issue is:

4312 *Latham vs. Armat, Interference Decision.*

4313 "In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

This issue is Claim 1 of Armat's application, with the exception that the issue omits the words "substantially as described."

4314 This issue requires that there shall be "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion." The meaning of this clause, as we understand it, is that the film shall be intermittently moved from one position of rest to another, the period of time during which the film is at rest exceeding the period of time during which the film is in motion. The issue further requires that this mechanism shall be of such as to permit illumination of the film during the period of rest. It is necessary to have the period of rest in order that a clear image may be projected upon the screen, and it is desirable that this period of rest should be of

4315

relatively considerable length so that the impression upon the eye may be definite enough to cause a persistence of this impression until the next picture is substituted.

In Armat's application the distinction between his device and former devices is well brought out.

"In devices or apparatuses such as have heretofore been devised for exhibiting life-like pictures or producing the appearance of objects in motion, it has been considered most feasible to keep the series of similar pictures (whether on a disk, tape or other surface) constantly moving at a regulated speed corresponding with the speed at which the pictures were taken, and by means of a shutter or light-obstructing surface to alternately cover and expose the pictures successively in a manner quite similar to the method of exposing the sensitive film or substance in taking the photographs, so as to bring the opening through the shutter centrally over a picture at intervals practically equal to the intervals between exposure in taking the pictures, so that each picture may be seen only when it is in such a position that it will be exactly superposed upon the image not yet (owing to the persistence of vision) faded from the eye. The openings in such shutters which are ordinarily in the form of revolving disks having openings near their circumferences, usually cover but a fractional part of the circumference of the disk, so that a view of the picture is afforded through an interval of time much less than the period of interruption; and as the illuminated pictures and the cloud effect, or darkness of interrup-

4316

4317

4318 *Latham vs. Armat, Interference Decision.*

tion, caused by the passage of the shutter across the light, are blended or mixed together in the eye of the observer, the darkness continues to impress upon the retina so much longer than the light that the value of the illumination is very greatly diminished and the picture appears to be poorly lighted or blurred.

4319

"In the case of my invention the conditions are quite different, and the results produced are therefore more satisfactory than and superior to anything of the kind heretofore obtained, for the reason that the picture is held a much longer time than is required to remove it and substitute another in its stead, thus prolonging the period of illumination very greatly as compared with the period of interruption or change; and there is no obstruction of the light by the interposition of a shutter or opaque substance across its path; so that the impression of the picture on the eye is so much longer and more permanent than the distortion or shadow effect incident to its movement, and the interval of change or interruption is infinitesimal that the image of the picture is readily retained until displacement and substitution takes effect, and owing to the inability of the eye to receive an impression from every phase of motion, the interruption or change is wholly imperceptible, and the result is a most vivid appearance of an object in motion, otherwise unchanging, clearly exhibiting all the phases of such motion with life-like effect.

4320

"My invention depends for its successful operation both upon the inability of the eye to receive an impression of movement exceeding

a certain rapidity, and upon that faculty of the eye which enables it to retain an impression after the source of light has vanished—the persistence of vision—which enables me to change the pictures, one for another, imperceptibly. This I accomplish by moving the film or other picture-carrying surface intermittently in such manner that the interval of exposure and illumination of the picture shall exceed the interval of time required to effect a change sufficiently to enable the eye to form a perfect impression or image at each exposure and to retain it through the interval of motion or change and until another picture has been superimposed, as it were, upon the one displaced, thus rendering the act or effect of displacement and substitution of pictures wholly imperceptible and giving the impression to the eye of objects in motion.

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“Various contrivances and forms of mechanisms may be employed for effecting the intermittent movement, the requirement being that the film or other surface shall be moved quickly between successive pauses far enough to expose the next succeeding picture in the series.”

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And again:

“From the foregoing description it will be seen that the pictures are brought successively into an illuminated field, and that each picture is illuminated without interruption from the instant it enters such field until displaced by the next picture in the series, and that the several pictures in the series are successively substituted one for another with such rapidity

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that, although the exposed portion of the film or picture-carrying surface is continuously illuminated, the eye receives an impression of the picture which so greatly predominates any possible impression that might be made by the practically instantaneous motion of said film or surface, in substituting picture for picture, that the predominating impression which the eye receives, owing to its inability to receive two impressions at one and the same time, and to the persistence of vision, has the effect of rendering the movement of the film utterly imperceptible, while the successive impressions of different pictures are each retained until another picture in the series is superimposed, as it were, upon the previous impression or picture, thus rendering it possible to produce most vivid and life-like effects without any interruption whatever in the illumination, whether the film is moving or stationary, and without interposing a shutter and thereby causing a shadow or shade effect which reduces the vividness of the impression. But I do not desire to be confined to the use of the invention without a shutter, inasmuch as such a device might be used under some circumstances, as, for instance, when constructed so as to interrupt the illumination only at that instant of time when the film is moving, and without rendering the interruption perceptible to the eye, but for all practical purposes a shutter of any kind is useless and objectionable and is preferably dispensed with."

It will be noted that a device containing a shutter is not excluded by the terms of the issue, but

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such device, if containing a shutter, must be so arranged or adjusted that the shutter will permit the illumination of the film through the period of rest and exclude the light only during the period when the film is in motion.

It is further to be noted that the apparatus defined by the issue is a picture exhibiting apparatus for giving the impression to the eye of objects in motion, and is not a photographic camera for the purpose of taking pictures. This kind of a device is frequently referred to in the evidence as a "projecting apparatus." An essential feature of this apparatus is the picture-carrying strip or film, since without such film none of the effects desired can be produced. The film is as essential a part of this apparatus as is the saw in a saw-mill or the form of type in a printing press. 4328

While it is true that a camera for taking pictures may be used as an instrument for projecting pictures by the substitution for the sensitized film of the camera the picture strip of the projecting apparatus and the provision of a proper light and projection apparatus, yet it does not follow that a camera having mechanism for imparting to the film the motion which this issue requires shall be imparted to the picture-carrying strip can necessarily by a reversal such as above indicated be used as a projecting instrument. Even if capable of projecting pictures and giving, to some extent, the semblance of objects in motion, it does not follow that such projection would be satisfactory or fall within the terms of this issue, since unless the shutter were omitted or so adjusted as to provide that the period of illumination of the pictures on the picture-carrying strip were considerably greater than the period of motion, the result in the mechanism 4329

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would not be that required by the issue; nor would as satisfactory a result be produced.

While it is true that "the inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not," as stated by the Supreme Court in *Roberts vs. Ryder*, 91 U. S., 150, and *Miller vs. Eagle Mfg. Co.*, C. D. 1894, page 147, it is also true as stated by the Supreme Court in *Potts vs. Kreager*, 70 O. G., 494:

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"Indeed, it often requires as acute a perception of the relations between cause and effect and as much of the peculiar intuitive genius which is a characteristic of great inventors—to grasp the idea that a device used in one art may be made available in another—as would be necessary to create the device *de nova*; and this is not the less true, if, after the thing has been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before. The apparent simplicity of a new device often leads an inexperienced person to think that it would have occurred to anyone familiar with the subject, but the decisive answer is that with dozens and perhaps hundreds of others laboring in the same field it had never occurred to any one before. The practiced eye of an ordinary mechanic may be safely trusted to see what ought to be apparent to every one.

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\* \* \* \* \*

"As a result of the authorities upon this subject, it may be said that if the new use be so

nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use."

The remarks of the Court were made with reference to a question of anticipation, a question not in fact the same as that before us. 4334

If Latham with his Exhibit Machine No. 12 and Casler with his Exhibit First Machine, both of which were taking cameras, could without invention have produced a machine of the construction called for by the issue, it is remarkable that they did not do so at any proven date before the filing of their applications.

The evidence shows that neither Latham nor Casler was an ordinary mechanic, but that they were inventors of considerable capacity, and yet neither of them produced a machine having the new and beneficial results which are claimed for the machine described in Armat's application. 4335

It is further to be noted that the Patent Office appears to have recognized the distinction between the cameras for taking pictures and similar apparatuses for exhibiting pictures, as will be seen by comparison of claim 1 of patent No. 586,953, to Jenkins & Armat, patented July 20, 1897, on an application, filed August 28, 1895, for an apparatus for exhibiting pictures, and claim 4 of patent No. 589,168, to Edison, granted August 31, 1897, on

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4336

application, filed August 24, 1891, for a kinetographic camera.

The sensitized film of this Edison taking apparatus has precisely the same intermittent motion as the picture-carrying surface described in the claim of Jenkins'-Armat's patent. The examiner properly allowed the claims of both applications, although the applications were pending at the same time, without any interference.

4337

In our opinion proof of the existence of a camera for taking pictures of objects in motion, said camera having in combination with the sensitized film mechanism for giving to the film an intermittent motion in which the periods of pause exceed the periods of motion, said mechanism comprising in addition the other elements called for by the issue and a shutter, is not a reduction to practice of this issue unless there is proof to show that when this camera was used for projecting the shutter was either omitted altogether or was so adjusted as to provide for such relative periods of pause and illumination and periods of motion as are called for by the issue. In our opinion neither Latham nor Casler has proved any such use either of Latham's Exhibit Machine No. 12 or of Casler's Exhibit First Machine.

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It is unnecessary to review Latham's testimony in detail. In the view we take of this case it is necessary only to determine what the construction of Latham's Exhibit Machine No. 12 was and when and how it was used, and to make the same inquiry with reference to Casler's machine.

There is much evidence on behalf of Latham himself as to a disclosure of the invention to others, but it is indefinite and is uncorroborated except by general statements that the design of

the machine and a general idea of the same were communicated to the witnesses. It is impossible from their testimony to get any definite information as to just what the disclosure was. The evidence is, however, sufficient, in our opinion, to show that under Latham's directions there was completed about Feb. 27, 1895, a machine in evidence as Exhibit 12.

There is some evidence on the part of Otway Latham and his brother Gray to show that pictures were photographed and projected some time in January. (See Q22, page 144; Q34, page 145; Gray Latham, Q21, page 202.) Otway Latham testifies:

"Q31. Where did you obtain the film used in that operation?

A. From Mr. W. K. L. Dickson.

Q32. Was it adapted to the machine?

A. As constructed at that time, yes. Later we made the sprocket wheels wider so we might use larger films.

Q33. What do you mean by larger films in the answer just given?

A. The film that Mr. Dickson gave me was an inch and three-eighths in width. The film that we afterwards used was two inches in width."

They seem to be in error as to the date, however, because Kleinert testifies that the photographing of a swinging incandescent lamp about February 26th to 27th was the first work that was done with this Exhibit 12, according to his recollection.

It may be admitted for the purposes of this case

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that the machine, Exhibit 12, was adapted and perfected for use as early as February 27th for the purpose of taking pictures. The evidence, however, as to the manner of its use as a projecting apparatus at that time or any subsequent time is vague.

Latham testifies as follows:

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"Q28. State whether or not the machine with which you state the pictures were taken that were projected by the machine described in Exhibit No. 4 could be employed to successfully project the pictures taken by it and whether or not it was ever so employed by you.

A. It could be so employed, and was, as a matter of fact, so employed by me in the month of January or February, or both, 1895."

Otway testifies:

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"Q47. State what use was made, if any, of the pictures that were taken on the original machine in May, 1895, and afterwards.

A. They were exhibited in the shop at 35 Frankfort Street by means of the machine that photographed them, and they were afterwards exhibited to the public at 156 Broadway by means of another machine that carried the film continuously."

\* \* \* \* \*

"XQ142. The pictures of the Griffo-Barnett prize fight were projected by this other and differently operated projecting machine which the Lambda Company had at that time. Is this not so?

A. At what time do you refer?

XQ143. At the time you mentioned yesterday when these pictures were projected on a screen?

A. Yes; and also by the machine, Exhibit 12.

\* \* \* \* \*

XQ173. When you projected pictures, as you say, in January of 1895, did you produce the effect on a screen of an object in motion?

A. Yes.

XQ176. Is the Exhibit 12, as it now stands, just as it was when you projected pictures, as you say, in January, 1895?

A. Yes; with the exception of the two reels upon which the films were rolled and the focusing lamp and objective lens."

4346

Gray Latham testifies:

"Q21. When did you first operate the machine, Exhibit 12, and where, for projecting pictures of moving objects?

A. Either in January, the latter part, or the early part of February, I think, my brother and I in the presence of several others removed the back plate from the machine, Exhibit 12, and inserted an electric light and projected satisfactorily one of the kinetoscope pictures on a screen at 35 Frankfort Street, in room 35.

\* \* \* \* \*

XQ71. Did you ever use Latham's Exhibit No. 12 for giving exhibitions to the public where an admission fee was charged?

A. We have never, so far as I know, used

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*Latham vs. Armat, Interference Decision.*

Exhibit No. 12 for giving such exhibitions. We have used a similar gearing in a machine with which we gave exhibitions to the public where admission was charged.

\* \* \* \* \*

XQ82. Where did you give and when did you give the first exhibition for pay with the gear similar to that known as the Geneva stop and shown in Exhibit 12?

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A. I don't remember when the first exhibition for pay with the gear similar to the one in Exhibit 12 was made, but I do remember to have seen an exhibition—several exhibitions, in fact—with a machine containing this gear at the St. James hotel, Twenty-sixth Street and Broadway, New York City, in the Spring of 1896.

XQ83. Can't you approximate the date a little nearer than you have?

A. I think the exhibitions referred to in my last answer occurred in May, 1896."

Woodville Latham testifies (Q235, page 99):

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"The idea of using for projection the machine I had made with the arresting device was given up by me at that time, for the reason, among others, that I thought that the arresting of the film would make its life very short as compared with what its life would be if it were run without interruption through a machine. By the expression 'at that time,' which I have used, I mean the time when the machine with an arresting device had been made and tried."

\* \* \* \* \*

"The reason why I abandoned the idea of using Latham's Exhibit No. 12 as a project

ing machine was that I believed the strain that machine would give to the film would shorten its life too much, and meanwhile I had found out how to project the pictures of a continuously running film" (Q32, page 260).

Otway Latham testifies:

"Q41. I now ask you to look at the machine which has been introduced in this case as Latham Exhibit No. 12, and state what you know about it and where you first saw it.

4352

A. This is the original machine made at 35 Frankfort Street and the machine used in taking the photograph of the incandescent light on or about February 26, 1895. These are the two large film reels and the boxes supporting them that are not on the machine that I have just seen, Exhibit 12. There is also missing the objective lens and the focusing lamp. With these exceptions the machine is complete. I first saw this machine in its present condition some time in January, 1895, at 35 Frankfort Street. It was used by the Lambda Company for some two years for photographing. It was also used by the Lambda Company for projecting photographs, but as the life of the film is very short when run through this machine, *we abandoned it for that purpose*. It was also used by the Eidoloscope Company during the year or so of its existence for photographing. When my connection with the Eidoloscope Company was severed I lost sight of the machine."

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The evidence taken as a whole, of which the above-quoted portions may be taken as examples,

shows that the machine was originally constructed mainly as a taking machine; that it may have been used several times as a projecting machine; that it was never used publicly and in the ordinary course of business as a projecting machine, and that its use as a projecting machine was afterwards abandoned.

4355 It further shows that the machine at the time that the experiments in projecting were made contained a shutter having an aperture very small in comparison with the entire area of the disk, so that though the film had an intermittent motion of such a character that the period of rest was much longer than the period of motion, the period of rest *and illumination* was no longer than the period of rest *and exposure* when the machine was used as a taking instrument, the conditions of taking instantaneous photographs of objects in motion being best satisfied when the film and its sensitive surface are at rest during the exceeding short exposure.

4356 It is denied on behalf of Armat that the machine ever could have been used successfully as a projecting apparatus because of the failure to provide for a period of rest *and illumination* longer than the period of motion, and we think that the failure of the applicant Latham to actually use the device for practical purposes is a sufficient indication that either he did not regard its projection as satisfactory from an optical standpoint or that the machine was as he says, mechanically defective, in that owing to the intermittent motion the life of the film would be shortened.

The evidence of Casler shows that his Exhibit First Machine was finished about March 1, 1895, was used about June, 1895, for taking pictures of moving objects and that in November, 1895, it

was used as a projecting machine. This Casler machine was designed for the purpose of taking photographic negatives of moving objects, as admitted by Casler himself, and was not intended as a machine for projecting photographs or pictures of moving objects. (See XQ170.)

Marvin states:

"But it was intended that photographic prints made from the negatives obtained with this machine should be cut up and used in the mutoscope when it was desired to exhibit these photographs by means of the mutoscope" (Ans. to Q67). 4358

The mutoscope is not a device for projecting pictures on a screen.

Casler himself testifies that this exhibition in November, 1895, was "very gratifying to all parties present" (XQ178).

Marvin, the second vice-president of the American Mutoscope Co., of which Casler is a director, testifies to the same effect (Q35). According to his testimony and that of Casler, when it was desired to use this machine as a projecting machine it was necessary to add pegs to the structure over and around which the film is carried, and to provide a mirror placed at an angle of 45° to the axis of the lens in order to deflect the rays of light from a lamp to cause the light to pass through the lens which is placed in the opening at the front of the camera where the shutter revolves. (See Casler, XQ189, page 48, and Marvin, XQ51.) 4359

Marvin admits that his company never manufactured a machine like the machine Casler's Exhibit First Machine for the purpose of projecting pictures, and that they had never used this

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exhibit machine in the way he describes it as capable of being used (XQ54, page 143).

4361 There is a further inherent defect in the machine in that it depends for the motion of the film solely upon frictional rollers. While this construction might be effective in taking a series of pictures upon a film it seems exceedingly doubtful whether in projecting it would be possible to cause these friction rollers to so accurately drive the picture-bearing film as to cause the pictures to take their proper positions with relation to each other. It is further apparent that the shutter of this first machine when it was used for projecting, was not adjusted, so that the periods of rest and illumination were substantially greater than the periods of motion. The relative lengths of such periods are stated in Armat's application to be in the ratio of 1 to 10.

4362 Marvin states that when the machine was used in the fall of 1895 as a projecting machine the adjustment of the devices was such that the period of pause and illumination exceeded the interval of movement (see Re Q77), but it further appears from his statement in Re-XQ82 that "the cut away portion of the shutter, to the best of my knowledge and belief, was one-half of the total circumference of the shutter."

This excess of period illumination existed, as is stated by Casler (XQ277) :

"A. Because, while the period of total obstruction is of the same length as the period of uninterrupted passage of light, there are two periods in the revolution of the shutter when the passage of light is only partially obstructed, and the period of passage of light to the screen exceeds the period of darkness such a period

of time as is required for the shutter to allow the unobstructed passage of light through the lens after it begins to allow the light to pass through said lens."

And he further testifies:

"XQ280. Do you mean, then, to state that a shutter such as has been described does not obstruct the passage of light for one-half the time?

A. I mean to say that a shutter constructed as described does not wholly obstruct the passage of light for one-half the time." 4364

This is mere quibbling, since it is evident that there was no substantial difference between the duration of the periods of rest and illumination and the duration of the periods of movement. This machine, like Latham's Exhibit Machine No. 12, was used solely as a taking machine, and was not used as a projecting machine until February or March, 1896, when Casler and Marvin say it was so used.

As to its later use there is no definite testimony and it cannot in any event avail Casler, since it is after the filing date of Armat's application. Casler, like Latham, experimented with his taking machine in an attempt to use it as a projecting machine and did nothing but experiment. We are not satisfied from the evidence that the results of these experiments were satisfactory, but we are satisfied that in each case a shutter was used, and that in neither case was the shutter so adjusted as to provide a period of rest and illumination longer than the period of motion of the film. In other words, even if Latham's trial of his Exhibit Ma- 4365

chine No. 12 and Casler's trial of his Exhibit First Machine as projecting cameras were so successful in result as to indicate that the machines were machine and did nothing but experiment. We are adapted and perfected for use, and therefore reductions to practice of whatever inventions are contained therein, we are still of the opinion that such machines did not contain the invention called for by the issue.

4367 It is not necessary to consider in detail the evidence offered on behalf of Armat, for the reason that it consists mainly of his own testimony, unsupported by sufficient corroborative evidence. The earliest date upon which he can rely is that of filing his application.

4368 It is the well-settled rule in interference proceedings that in order to constitute a reduction to practice of the combination specified by an issue the device must contain every element specified in the issue. (See *Wolfenden vs. Price*, 83 O. G., 1801.) It follows from this rule that the practical test of a combination which does not embrace every such element is not a reduction to practice of the issue. (See *Tracy vs. Leslie*, 87 O. G., 891, and the cases there cited.)

Applying this rule to the case before us, neither Latham nor Casler has shown that they had a conception of the invention of the issue or reduced it to practice before the dates of filing of their respective applications.

As Armat was the first to file an application containing a clear description and claim of the invention of the issue, he is entitled to an award of priority.

On behalf of Casler the testimony of one Lauste was offered to show that Latham was not the original inventor of his machine, Exhibit No. 12.

This evidence cannot be received or considered in this proceeding, for the reason that it is impertinent to the issue, which is as to priority of invention between the applications involved in this interference, and between them only. (See *Foster vs. Antisdel*, 88 O. G., 1526.)

In our opinion Armat is the prior inventor of the invention in issue, and the decision of the examiner of interference awarding priority to Latham is accordingly reversed.

J. H. BRICKENSTEIN,  
T. G. STEWARD,  
Examiners-in-chief.

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Third member absent.

Limit of appeal will expire Nov. 16, 1899.

Endorsed: Thomas Armat—Appeal No. 22185—  
Intfc. No. 18461; paper No. 3—Decision, dated  
October 17, 1899—*Latham vs. Casler vs.*  
*Armat*—Examiners-in-chief, U. S. Patent  
Office, Oct. 17, 1899. Recorded, vol. 27½,  
page 138.

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**Defendants' Exhibit 46.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS CO.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
CO. OF AMERICA,

Defendant.

In Equity,  
No. 5-167.

4373

**COMPLAINANT'S EXHIBIT.****Decision of Commissioner of Patents  
in Armat Interference.**

Jan. 10, 1900.

S. E. T.

UNITED STATES PATENT OFFICE.

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LATHAM

vs.

CASLER

vs.

ARMAT.

Intf. No. 18461.  
Apparatus for  
Projecting on  
a Screen Pic-  
tures of Mov-  
ing objects.

**Appeal from examiners-in-chief.**

Application of Woodville Latham filed June 1,  
1896, No. 593,747.

Application of Herman Casler filed February 26,  
1896, No. 580,810.

Application of Thomas Armat filed February 19,  
1896, No. 579,901.

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Mr. J. E. M. Bowen and Mr. W. G. Henderson for Latham; Mr. Phillips Abbott of counsel.

Messrs. E. M. Marble & Sons and Mr. John T. Easton for Casler; Messrs. Kerr, Page & Cooper of counsel.

Mr. Julian C. Dowell for Armat.

This case is before me on appeals by Casler and Latham from the decision of the examiners-in-chief awarding priority of invention to Armat upon the following issue:

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"In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip of film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

4377

The examiner of interferences awarded priority to Latham.

The invention is a picture-exhibiting device, and although it is well recognized that devices for so exhibiting pictures as to give the impression to the eye the objects in motion are in some instances very closely related to devices for taking those pic-

4379 tures, and although some devices may by modification and adjustment be used for both purposes, it does not follow that the construction and use of a device for taking pictures is a reduction to practice of a device embodying much of the same mechanical construction for the purpose of exhibiting pictures. There are certain necessary changes which must be made in any taking device before it is adapted for use as an exhibiting device, and it does not follow that because a device is satisfactory for one purpose that it will in its modified form be satisfactory for the other purpose. It does not follow, furthermore, that the modifications necessary in a particular device to adapt it to its new use are in all cases obvious to those skilled in the art. This question has been fully discussed by the examiners-in-chief, since it is directly brought up for consideration and decision by the evidence in the case.

Latham's case rests almost entirely upon evidence in regard to a device introduced in evidence as Exhibit 12. The evidence clearly shows that this exhibit was completed in February, 1895, and that it was successfully used at that time and subsequently for taking photographs. As used for that purpose and as it exists at present, the exhibit does not embody the issue, since it is provided with a shutter having a very small opening for the passage of light, so that the period of illumination is much shorter than the period of movement instead of being greater. If that shutter were removed or a different form of shutter were used and certain modifications, including the provision of a light, a condensing lens, and a picture-carrying film, were made in it the device would have been a picture-exhibiting device embodying the issue. Latham

contends that it has been shown that the changes indicated were in fact made, and that the device was successfully used for projecting pictures, as stated, as early as January or February, 1895. The evidence on this point is, however, far from satisfactory, and indicates clearly that, even if the device was in fact so used, it was not regarded by Latham and his associates as a satisfactory projecting apparatus, but was abandoned by them for that purpose. This is clearly testified to by the party, Latham (XQ252), and his son, Otway Latham (Q41). There is no positive statement by the witnesses that the shutter was omitted when projecting pictures, but it seems probable that it was in fact omitted. This cannot avail Latham, however, for, as above noted, according to his own admission, after testing the device for projecting he gave it up for that purpose and proceeded to devise another apparatus, in which the film moves continuously. On behalf of Latham much stress is laid upon his statement that the reason that he abandoned the use of Exhibit 12 as a projecting apparatus was that he thought the arresting device would make the life of the film too short. It is argued that the length of time the film lasts has nothing to do with the question whether or not the device satisfactorily projected pictures at the time it was used and amounted to a reduction to practice of the invention at that time. This contention is not sound, however, since the question is not merely whether or not the device accomplished the purpose of projecting pictures as intended, but is whether it accomplished it in the way desired, and was as a whole a satisfactory device for the purpose and was so regarded by the inventor. So long as the device was regarded by the inventor as imprac-

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*Latham vs. Armat, Interference Decision.*

tical and unsatisfactory and was abandoned, it is immaterial what reasons caused him to abandon it and regard it as unsatisfactory. The film is a necessary part of a projecting apparatus, and since the operation of the other parts of the apparatus were such as to cause Latham to think after testing it that the film would be destroyed so soon as to make the device impractical for the purpose and to induce him to abandon that device for projecting, it must be held that the test was a mere abandoned experiment. It is noted, furthermore, that Latham does not say that the life of the film was the only thing that made him abandon the use of Exhibit 12, but says that it was one reason "among others." XQ235.

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Even conceding that Latham had a conception of the invention in January or February, 1895, he did not reduce it to practice or exercise diligence in regard to the matter between that date and February 19, 1896, when Armat constructively reduced it to practice by filing his application. He not only failed to reduce it to practice, but according to the evidence, abandoned it in favor of another form of picture-exhibiting device, in which the film moved continuously.

4386

Casler alleges a conception of the invention in December, 1894, and a reduction to practice by the completion and use of a device introduced in evidence as "Casler Exhibit First Machine" as early as March 1, 1895. That device is said to have been commenced in January, 1895. The evidence shows that the device referred to was completed at the time stated, and that it was then operated by using a strip of paper in place of the film. Nothing further seems to have been done with it after its completion until June, 1895, when it was first used

for taking pictures. It was made and intended as a picture-taking device, as clearly appears from the testimony of Casler and his witnesses, and was not used or adopted for projecting pictures until November, 1895. To adopt it for that purpose it was necessary to make certain changes in it, which are briefly described by Casler as follows:

"As all machines used for the purpose of projecting pictures require a lens and some source of light, I provided the source of light and also a mirror for directing the light through the film and some pegs for carrying the film in front of the mirror, the lens being already attached to the machine." XQ181. 4388

Casler and his witnesses testify generally that when the device was first made he had the idea of using it for projecting as well as taking pictures, but the witnesses fail to testify to any disclosure to them of the means by which this would be done prior to November, 1895. It is clear, therefore, that whatever general statements Casler may have made as to the possibility of adapting the device to projecting pictures, the evidence does not show a conception by him of the means here involved prior to November, 1895, even if it can be held to show a conception at that date. 4389

The Exhibit "First Machine" is provided with an adjustable revolving shutter, or, in other words, one wherein the size of the opening can be varied from a very small opening up to one-half of the circumference of the shutter. That shutter was in the machine when used for projecting pictures in November, 1895, and, since it is impossible to so adjust it that the opening will be greater than one-half of its circumference, the examiners-in-chief held that the device did not embody a construction

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in which "the interval of pause and illumination shall exceed the interval of motion," as set forth in the issue. They held that with such a shutter the picture would be obscured for substantially one-half of the time and illuminated for one-half of the time. This holding is not strictly correct, for, as pointed out by Casler, on account of the width of the opening through which the picture is projected, the shutter will not totally obscure the picture for one-half the time, but there will be two periods during which the edges of the shutter are passing across the opening when there will be a partial illumination of the picture. The period during which the passage of light is entirely obstructed by the shutter and the period during which it is uninterrupted are equal, but the period during which it is partially obstructed must be counted with the period of illumination. This period of partial illumination is not great, but is, strictly speaking, sufficient to make "the interval of pause and illumination exceed the interval of motion." The amount of light which passes through the opening is just one-half of what it would be if not interrupted at all, but the time during which it passes is a little more than half. It seems doubtful if such a construction, operating as it does, would meet the requirements had in mind by Armat and Latham when they conceived the invention in issue, or that it was so contemplated by Casler when it was devised by him, in spite of the fact that the issue construed literally reads upon it. Casler himself says in his specification: "The shutter and the feeding mechanism shown in the drawings are arranged to admit the passage of light during half the revolution of the shutter," and proceeds to say: \* \* \*

"The intensity of the illumination upon the screen

may be greatly increased by increasing the time during which the shutter is open."

He also says that the shutter may be dispensed with entirely. These statements indicate that when the device was used in November, Casler had no conception of the idea of making the period of illumination more than half of the entire period, and it does not appear from the testimony when he first conceived the idea of modifying or omitting his shutter so as to admit more light, as set forth in his specification. There is no evidence that he ever made or used such modified construction prior to filing his application. The claim of the issue was first made by Armat and was adopted by the other parties, and therefore, if there is doubt as to its meaning, it should be determined from Armat's specification. In his device the relative lengths of the periods during which the picture is illuminated and obscured are in the ratio of 6 to 1, and while the claim is not limited to this ratio, it clearly means, in view of his specification, that there shall be a substantial difference between the lengths of the periods. Even if the issue is to be construed with reference to Casler's specification, it must be held that it was not intended by him to apply to a device wherein one-half of the shutter is cut away, in view of his statement that such a shutter admits light for one-half of the time, but was intended to apply to the different forms of the device in which more light is admitted. According to Casler's own specification, therefore, the issue does not apply to his "first machine."

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Even if it could be held that the machine as modified and used in November, 1895, did embody the issue, it has not been established that the test proved satisfactory and amounted to a complete

4396 *Latham vs. Armat, Interference Decision.*

- reduction to practice. Marvin states that in projecting pictures in November, 1895, the shutter was so adjusted that one-half of the circumference was cut away and that "the exhibition was very satisfactory." The device was tested for projecting one night only and was not afterwards used for projecting, and no other machines were made like it for that purpose. The parts added to adapt it for projecting were apparently at once removed and not used in the device again. It is contended by Armat that, even aside from the question whether or not it embodied the issue, it could not have operated satisfactorily for projecting pictures, since it depends for the motion of the film solely upon frictional rollers, which, it is alleged, would slip and thus displace the pictures on the screen. In Casler's specification it is acknowledged that the film does slip, and one of the principal features of the invention set forth in his application here involved is mechanism to compensate for this slipping. It seems doubtful if the device would operate satisfactorily without this compensating mechanism, and it was not present in the "first machine," in
- 4397 November, 1895. The circumstances of the case and Casler's action in reference to the device after the single test in November indicate strongly that its use was not a reduction to practice of the invention embodied in it, but was merely an experiment abandoned as unsatisfactory. The mere statement by Casler and Marvin that the test was satisfactory is not sufficient to overcome the presumption raised by their action in abandoning the use of the device for that purpose after the test, nor is it sufficient to overcome the doubt raised by the construction of the device itself as to whether it is capable of satisfactory operation for the purpose.
- 4398

Armat testifies that he exhibited pictures at the Atlanta Exposition in October, 1895, with a machine introduced in evidence as "Armat machine." That machine as first constructed was made by the witness Wellauer and shipped to Armat, in Atlanta, in September, 1895. Wellauer identifies parts of the machine as having been made and assembled by him. Armat testifies that he made certain changes in its construction after it reached Atlanta, and it is stipulated that his testimony as to what workmen in Atlanta actually made these changes is correct. Those changes are said to have been completed in October, when the device was in substantially the same condition as it is now and embodied the invention in controversy. J. H. Armat testifies that he saw and operated for exhibiting pictures either the machine in evidence as "Armat machine" or one similar to it in October, 1895, at the Atlanta Exposition. He states that he can swear that the machine he operated in Atlanta was like the Exhibit "Armat Machine," but cannot swear that it was the identical machine. The witness Daniel states that he recognized Exhibit "Armat Machine" as the identical machine used for exhibiting pictures in his office in November, 1895. His identification of the exhibit as the same machine is very positive, and he bases this identification not only upon the general appearance of the machine, which he states was impressed upon his mind, but also upon the mechanical construction and operation of the parts which he describes (XQ57). An attempt was made to discredit this witness's identification of the machine by calling attention to Armat's admission that one of the standards now in the machine is not the identical standard which was in it when used as alleged.

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# **CARD 16**

4402

*Latham vs. Armat, Interference Decision.*

This difference, however, is immaterial and one not likely to be noticed by any one in examining the machine, and therefore it can take nothing from the force of Daniel's testimony. The machine undoubtedly embodies the invention in controversy, and it must be held from the evidence that Armat made and used it at least as early as November, 1895. Whether or not this use in November was a reduction to practice, he is entitled to the date of filing his application as his date of constructive reduction to practice, and that is prior to any date of reduction to practice proved by the other parties.

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Casler has not shown a conception of the invention prior to Armat's proven date of conception, and although Latham may have been the first to conceive, he was the last to reduce to practice and did not exercise reasonable diligence in effecting that reduction to practice.

The decision of the examiners-in-chief awarding priority of invention to Armat is affirmed.

4404

A. P. GREELEY,

Acting Commissioner,  
now Assistant Commissioner.

February 5, 1900.

Endorsed:—Intf. No. 18461—paper No. 9—  
Latham vs. Casler vs. Armat—Comm'r's decision, dated Feb'y 5, 1900—Recorded vol. 68, page 458.

**Defendants' Exhibit 47.**

4405

CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

MOTION PICTURE PATENTS Co.,  
Complainant,

vs.

INDEPENDENT MOVING PICTURE  
COMPANY OF AMERICA,  
Defendant.

4406

COMPLAINANT'S EXHIBIT.

**Decision of Court of Appeals in Armat  
Interference.**BENJAMIN BARKER,  
Examiner.WOODVILLE LATHAM,  
Appellant,

vs.

THOMAS ARMAT.

No. 153  
Patent  
Appeals

4407

This is an appeal from the decision of the Commissioner of Patents in an interference proceeding having the following issue:

"In a picture-exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture-carrying strip or film, a tension device adapted to keep the

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*Latham vs. Armat, Interference Decision.*

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film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

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There were three parties to this proceeding on whose behalf testimony was taken, namely, Armat, Latham and Casler. The last named has taken no appeal from the final decision against him. Armat, having filed his application on February 19, 1896, is the senior party. Latham filed June 1, 1896, and upon him therefore lies the burden of proof. His testimony tended to show conception of the invention during the summer of 1894; but the examiner of interferences, who awarded him priority, though it is plain that he did not, until after January 1, 1895, conceive any means for "Intermittently moving the film."

All the tribunals agreed that Armat's conception and reduction to practice could not have earlier than about November, 1895. Whether Latham had an earlier conception than accorded him by the examiner of interferences, or Armat's reduction to practice shall be carried back to September or October of 1895, or confined to the date of his application, would seem to be unimportant. The question of priority must turn upon Latham's claim of reduction to practice between January 1, and early in May of 1895—in which his claim of conception of

the invention of the issue is largely involved—for if that claim should fail, efforts made in 1896 would not avail.

It is contended on behalf of the appellant that, in deciding this question, the Commissioner “misconceived the gist and essence of the real improvement in issue.” In view of this contention it becomes important, preliminarily, to consider the state of the art of taking and exhibiting moving pictures at the time of the invention in controversy, and the conditions of its application therein.

It has been ascertained that the average human eye will retain the impression created by the rays of light from an object in sight, for a period of about one-seventh of a second of time, after the actual removal or obscuration of the object. All devices for the exhibition of moving pictures have been founded on this phenomenon, called the “persistence of vision.”

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If, therefore, a series of pictures, consecutively taken, be exhibited in such rapid succession as to come within the aforesaid period of persistence of vision, the eye will not detect the fact that the pictures are being shifted, and the consequent effect will be that of a continuous representation of the objects in motion.

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Several devices for the creation of such effects had been in existence for some years before the present parties entered the field. Among these was the well known Kinetoscope, patented to Edison March 14, 1893. In this a moving object that had been consecutively and rapidly photographed upon a long and narrow film, was made to move before the eye with the necessary rapidity to create the impression of the same object in continuous motion.

In these devices, however, the picture could be exhibited to but one person at a time. The next step in order was the projection of the picture upon

- a screen for exhibition to a greater number of persons, at the same time, through the aid of the magic lantern. Instead of transferring the pictures to glass as had been the custom in the ordinary use of the magic lantern, the long picture film or translucent celluloid base was arranged to pass between the condensing and magnifying lenses, with such motion as to cause the projection of the desired moving picture. A number of devices or machines, both for rapidly taking consecutive pictures upon long films and for projecting similarly taken pictures upon screens through combination with the magic lantern, had been patented before this controversy began. How successful these had been or how largely they had been utilized does not appear. Some of them have been referred to on the argument, and copies have been exhibited by the parties in aid of their respective contentions; but there is no occasion to enumerate them here. In some of these, the continuous film was passed along with an intermittent, or step by step, motion, thereby giving a brief period of rest for the exposure followed by a rapid substitution of the proper succeeding space.
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- 4416 This intermittent motion is essential to the satisfactory performance of either process. It gives the rest period necessary for the impression of a distinct picture in the one, and for an effective view of the other. A rapid movement following the rest period maintains the proper consecutiveness in taking the pictures, and makes available the "persistence of vision" in its subsequent exhibition.

The Joly apparatus for taking pictures, and one of those above referred to, embodies also the feature of forming slack in the film at the point where it enters the tension device. This formation of slack is a part of the combination of the issue and will be recurring to later. A machine, called the plantoscope,

for the purpose of projecting pictures was patented to Jenkins and Armat July 20, 1897. One of the objects set forth in its specifications is to provide means for displacing and substituting a picture in an interval of time less than the period of exposure and illumination.

One serious impairment of the value of these picture exhibiting machines, including the plantoscope aforesaid, was the injury and speedy destruction of the film by repeated use. This film which is often of great length and very expensive is wound upon a reel for feeding to the carrying mechanism. After passing the point of exposure it is taken up by a corresponding reel upon that side.

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To bring the pictures forward regularly and accurately, perforations made in the edge of the film are engaged by the teeth of the sprocket wheel which imparts the intermittent motion. The film must also be engaged by a device that keeps it tight and smooth at the point of exposure and illumination. After coming to a stop for the established exposure period, the film is moved rapidly so as to present the next succeeding picture for illumination and exposure before the impression of the first shall have faded from the retina.

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An increased rapidity of this movement will add to the efficiency of the apparatus. Now, when operated by one mechanism, as had formerly been the case, the sudden jerk following the period of rest had not only to overcome the resistance of that inertia and the friction of the tension device, but also the resistance of the reels which, in some instances, would be great. The resulting injury to the films consisted mainly in tearing at the points of engagement with the teeth of the sprocket wheel.

One object of the invention of the issue, and which the appellant contends is the only patentable

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feature of the combination, was the provision of means for maintaining the intermittent feed of the film and relieving it of all additional strain and wear during the operation. The new apparatus embraces two separate and independently actuated feeding mechanisms. One of these operates continuously and with comparative slowness to unwind the film from one reel and wind it upon the other, and is so constructed and arranged as to maintain any desired amount of slack in the film between the delivery reel and the tension device.

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The second co-operates, but is quick acting and intermittent.

By its sudden, quick motion, it jerks the film, for a space not exceeding the slack maintained therein, through the exposure opening after each period of rest.

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In addition to this feature the Patent Office authorities regarded another as essential to render the combination of the issue patentable, namely, "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion." And it appears that Armat's application in this case was rejected until he added to his claim the words of the issue—so that the interval of pause *and illumination* shall exceed the interval of motion. We have seen that former devices were made to feed the film in such manner as to provide a period of rest longer than the following period of movement; but it seems that exhibiting machines were operated like the taking cameras with shutters usually in the form of a revolving disk, with openings, which alternately cover and expose the film spaces as moved. By reason of this, the period of illumination was made less than the period of rest, and the general effect

of the exposition was impaired by the frequent passage of the opaque part of the shutter across the rays of light while the picture was still at the point of exposure. At any rate, it was thought essential to the combination allowed, and as such declared in interference, that the period of pause and illumination should exceed the period of motion required to bring forward the next succeeding picture of the series.

This was equivalent to saying that each picture when in the field of exposure should be illuminated without interruption. This brings us to the contention of the appellant that the sole patentable novelty of the invention of the issue consists in the feature of the mechanism for intermittently moving the film "with great rapidity without unnecessary strain and wear upon the film."

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For reasons that have been sufficiently expressed in former decisions, the question of patentability, is not ordinarily regarded as open on appeal to this court in an interference case, but is to be regarded therein as conclusively established by the Commissioner of Patents. The question in such cases is one of priority and not of patentability.

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Hiser vs. Peters, 6 App. D. C., 68, 70.

Doyle vs. McRoberts, 10 Idem, 445, 467.

Newton vs. Woodward, 16 Idem, 568, 572.

It is true that there might be exceptional circumstances in a particular case whereby the question might be inextricably involved in the merits of the claim of priority, and become incidentally a part of the final determination thereof. No such circumstances are shown here.

Again, patentable novelty has been declared in the Patent Office to lie in an apparatus embodying all of the elements set forth in the issue. The rule

of the Patent Office seems to be well established that when a party has incorporated an element into his claim it is to be regarded as a material part of his invention.

Wolfenden vs. Price, 83 O. G., 1801; C. D., 1898, page 87.

4427 Be that as it may, having said that the question of patentability is one for the exclusive determination of the Commissioner of Patents, to the extent that it is involved in a proceeding of the restricted nature of an interference case, it would seem to follow that such determination must be accepted in the terms in which it has been formulated.

It remains now to consider Latham's claim of reduction to practice.

4428 A picture taking camera, like many of those heretofore referred to as patented, could undoubtedly be utilized as an apparatus for exhibiting pictures also, by substituting a picture film in the carrying device and then applying the apparatus of the magic lantern. Notwithstanding this capacity for both uses, as said by the examiners in chief, "the Patent Office appears to have recognized the distinction between the cameras for taking pictures and similar apparatus for exhibiting pictures." They refer, for illustrative examples, to claim 1 of the Jenkins and Armat patent and claim 4 of Edison's patent for a kinetographic camera, and say: "The sensitive film of the Edison taking apparatus has precisely the same intermittent motion as the picture carrying surface described in the claim of the Jenkins-Armat patent." The reason for this distinction need not be entered into. It has not been questioned, and, moreover, would seem to stand as any other question of patentability in respect of collateral inquiry in this character of proceeding.

It appears that the original apparatus of Latham (Exhibit 12) on which the reduction to practice of the invention of the issue has been claimed, operated with the double mechanism—one continuously feeding the film from the reel, and the other intermittently moving it across the path of exposure. This was undoubtedly an effective machine operated as a camera for taking consecutive pictures, but that is the only practical use to which it has been put. That it was experimented with on one or more occasions by Professor Latham and his sons, as an apparatus for projecting pictures, may be regarded as established. In ascertaining the result of this experimentation, the evidence relating to it, given several years afterwards, must be considered in the light of the subsequent acts and conduct of the parties interested, and other surrounding circumstances. So considered, it does not appear to us sufficient to justify the reversal of the decisions of the Examiners in Chief and Commissioner to the effect that what was then done is trial of the machine amounted to nothing more than an abandoned experiment. These private tests were not followed by a public exhibition. The machine, though kept and satisfactorily operated as a camera for taking pictures, was not again tried for their projection. Such use, however, cannot be taken as reduction to practice of the other, because of the patentable distinction, before referred to, that has been observed between apparatus for taking pictures, and that for their exhibition.

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Breul vs. Smith, 10 App. D. C., 180, 185.  
 Tracy vs. Leslie, 14 Idem, 126, 135.

Just what does amount to reduction to practice of a machine, as contradistinguished from unsatisfactory and abandoned experiments, presents a

4432 *Latham vs. Armat, Interference Decision.*

question of constant difficulty in this class of cases, and depends, chiefly, upon the special circumstances of each case in which it is sought to be established. A rule cannot be laid down in one case to govern all others. At one time it may be held reduction to practice, where the machine, though defective in mechanical construction and working crudely in practical, public trials, nevertheless demonstrates its practical efficacy and utility, and the subsequent failure to perfect by the application of the necessary mechanical skill, has been satisfactorily accounted for, as in cases like that of *Coffee vs. Guerrant*, 3 App. D. C., 497. Again, it may be held as falling short of reduction to practice, where a machine, though skillfully constructed, at great expense, has only been tested by the inventor once in the presence of a witness, and then all testimony fails in respect to its subsequent use for the only purpose of its alleged invention, as in cases like that of *Reichenbach vs. Kelley* (Present Term), and others therein cited.

4434 We are free to confess in this case that the inspection of the original machine, and the proof of its efficient performance in intermittently moving the film for the taking of pictures, in connection with the evidence of the first private trials in exhibiting pictures, has strongly inclined us to decide in favor of its reduction to practice. But we have not been able to overcome the weight of one circumstance that has important bearing upon the sufficiency of the test as reduction to practice, when we bear in mind all of the limitations and requirements of the issue, which we have heretofore said must be done.

As we have seen, an important element of the invention of this issue is the requirement to give a longer period for pause, and for the illumination of the picture, than is required for its displacement

and substitution by the one following: and this period of pause and illumination is concurrent. The original machine was constructed with a shutter and that shutter remains a part of it. Such a shutter performs an important, if not necessary function in a camera for taking pictures, but operates injuriously when the apparatus is used for their exhibition, as has been heretofore described. Practically it reduces the illumination period to that of the movement of substitution.

The Examiner of Interferences, who decided in favor of Latham, stated in his decision, that the machine has been constructed for taking pictures and not for their exhibition, and that with the shutter it could not be made to conform to the issue in respect of giving a period of illumination in excess of the period given to jerk the film from picture to picture. His conclusion in favor of Latham's priority was put upon the ground that the shutter was not demanded by the issue, and being no essential element of a picture exhibiting machine, could be removed and set aside, whereupon the machine would become an embodiment of every element of the issue. Consequently, as the machine, though invented for taking pictures, could, by removing the shutter, be as effective for their exhibition, he was of the opinion that Latham was entitled to the benefit of this additional use even if he had not conceived or appreciated it.

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For reasons heretofore given, this view is not tenable.

Recurring to the testimony, it does not appear that Latham had any idea of detaching this shutter in using the machine for exhibiting pictures.

It was attached when he made the experiments relied upon. Nor does it appear that he dispensed with it in making the later machines with which he

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*Latham vs. Armat, Interference Decision.*

had made exhibitions. If he ever realized that the shutter of the taking camera was useless in the machine when converted into an exhibitor, or an impediment to the excellence of its use as such, and therefore dispensed with it in subsequent constructions, his evidence does not show it, affirmatively; and this it was incumbent upon him to do.

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It is this condition that involves, to a certain extent, the question of his conception of the invention of the issue, with that of his reduction to practice, and renders it impossible for us to find that he has overcome the burden necessary to an award of priority over Armat.

The case has been one of difficulty, and we have come to a decision not without some doubts as to its soundness; but that very doubt, if nothing more, would demand that the decision of the Commissioner be not reversed.

For the reasons given the decision will be affirmed, and the proceedings herein will be certified to the Commissioner of Patents, as required by law. It is so ordered.

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Affirmed,

SETH SHEPARD,  
Associate Justice.

Endorsed:—No. 153 Patent Appeals—Woodville  
Latham, Appellant, vs. Thomas Armat—  
Opinion of the Court per Mr. Justice Shepard  
—Court of Appeals, District of Columbia—  
Filed Jan. 8, 1901—Robert Willet, Clerk.

A true copy.

(Seal.)

Test: HENRY W. HODGES,  
Clerk of the Court of Appeals,  
of the District of Columbia.  
By MONCURE BURKE,  
Assistant Clerk.

**Defendants' Exhibit No. 48, Baltimore Sun Article, October 3, 1895.** 4441

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MR. EDISON OUTDONE.

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PHANTOSCOPE MORE WONDERFUL THAN HIS  
KINETOSCOPE.

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LIFE SIZE FIGURES SHOWN.

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4442

The Remarkable Invention of a Washington  
Stenographer.

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It Will be Shown for the First Time at the Atlanta  
Exposition, Where it May Reproduce All the  
Details of a Mexican Bull-Fight Without Fear  
of Interference by Mr. Ballou—It May Also  
Figure Largely at the Corbett-Fitzsimmons  
Prize-Fight at Dallas.

4443

(Special Dispatch to the Baltimore Sun)

WASHINGTON, Oct. 2.—The last concession of  
space made by the Atlanta Exposition management  
before the opening of the big cotton States show  
will be occupied by the machine that Edison has  
been working years to perfect. There is no Edison  
in this, however. The Wizard of Menlo Park has  
been beaten at his own game by two young Wash-

- ingtonians, and they left this city last week for Atlanta, where they will put up a \$5,000 building to display their new device. It is known as the phantoscope and is a combination of the kinetoscope principles with those of the stereopticon. The result is a machine that will throw life-sized figures or figures of any other size, for that matter, on a large screen and impart to them all the movements of life. This may seem a simple thing at first sight, so long as the kinetoscope has reached a stage of perfect operation, but it is not so easy as it looks. It is the thing that has baffled Edison, and the kinetoscope, which produced tiny figures dancing inside a dark box, is the nearest approach he has ever made to solving the problem. The phantoscope has been successfully running in Washington for some weeks past, but the machine taken by Mr. Jenkins, one of the inventors, to Atlanta last week is the first that he and his colleague, Mr. Armat, have ever turned out. It is 12x15x24 inches in size and weighs, all told, fifty pounds. But Mr. Jenkins is now at work on another machine that will do the same work and can be put under a silk hat. The machine is quite simple in operation. As in the kinetoscope, the pictures to be reproduced are taken on a continuous strip of sensitive film at the rate of twenty-five or thirty per second. The film is only about an inch wide, and is wound off one spool in the machine upon another, and can be almost instantly reversed and run back.
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- 4446

The length of any scene reproduced depends only on the length of film used, and this can be increased almost indefinitely, so that a whole act of a theatrical performance could be taken, if necessary, on a single film. As a matter of fact, most of the

scenes that Messrs. Armat and Jenkins carried South with them were vaudeville and specialty "turns," of only a few minutes each, that had been caught on the fly, so to speak, in Washington and New York. One virtue of the new phantoscope camera by which these young men take their pictures is that it operates with a very large aperture and makes it possible to take snap-shot pictures at a high rate of speed in the theatre itself, and in many other places where heretofore photography has been impossible. Another feature of this rather remarkable camera is that it has no shutter nor light-interrupting device.

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#### ITS MYSTERIOUS OPERATION.

The operation of the phantoscope itself is silent and almost mysterious. The screen used with the present machine is twenty feet square. Upon this the lens is focused, and, without other warning than a soft whirl in the darkness, a figure leaps out into the lighted space. With gliding step it moves forward to the edge of the "stage" and gathers its flowing draperies in either hand with a sweeping curtsy. It throws back its head with a saucy jerk, flipping the point of a black lace mantilla away from the dark Spanish face, and then, with a familiar flash and smile of those dark Spanish eyes, whirls away in graceful, passionate, but without stately, mazes of the "Santiago." Of course, it is Carmencita, the little witch of Madrid, who has had so many poor imitators and not a single equal. But no matter whether Carmencita has a worthy successor or not, she is preserved, let us hope, to posterity in the magic records of the phantoscope.

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There are any number of other scenes and per-

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formances which have already been caught in the phantom camera, including the acrobatic death of Svengali from the burlesque "Trilby." But the greatest drawing card of the phantoscope at Atlanta is likely to be the Southern plantation scene which the inventors intend to catch on the spot and reproduce in the \$5,000 building which they are now erecting for the accommodation of their machine. Besides this, they will keep in touch with the advancing theatrical season in New York and reproduce all the hits of the hour from the variety and specialty performances. It is likely

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that the exposition, by means of the phantoscope, will get a glimpse of a Mexican bull fight, in spite of Mr. Hosea Ballou and his humane society. As soon as the exposition management was assured of the success of the phantoscope they said that they wanted one of the inventors to go down to old Mexico and catch a bull fight in his machine. In this event, no matter how many bulls were slaughtered or how many picadors were tossed over the barriers, it is hard to see how even Mr. Ballou could interfere with the performance unless he got out extradition papers for the wicked

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phantoscope camera while it was absorbing the bull fight on Mexican soil. Mr. Jenkins says that in case the bull fight by proxy is made one of the features of the Atlanta Exposition he has a scheme for turning it into a big outdoor entertainment. The management intends to have a large artificial "mist bank" produced on certain nights, to be illuminated by colored lights after the manner of the great McManies fountain at the World's Fair. If this is done, Mr. Jenkins says he can use it as a background and throw his bull fight against it for the benefit of the public.

## MAY REPRODUCE THE BIG FIGHT.

It is quite possible also that the phantoscope may figure largely in the Fitzsimmons-Corbett fight at Dallas. Lanky Bob has expressed himself as much disgusted at the way Corbett and his partner Brady have gobbled all the privileges appertaining to the show, including among other things the use of the eidoloscope, a machine with which it is intended to reproduce the big fight all over the country. In view of the fact that the phantoscope can do all and more than is claimed for the eidoloscope, Mr. Jenkins will open negotiations with Fitzsimmons to get a privilege for the phantoscope at the big show. If this is done, the whole country will ultimately get a chance to see a faithful reproduction of what promises to be one of the greatest fight in the history of the ring. 4454

Both the inventors of the phantoscope are young men. J. Francis Jenkins is a native of Ohio, but a citizen of the world. He climbed glaciers in Alaska, punched cattle in the Panhandle, slept out of doors in the semi-tropical skies of old Mexico and has had quite a number of adventures for so young a man. In conversation with the writer Mr. Jenkins said he had been thinking of and working on his pet invention for six years past. The first suggestion came to him one day while mountain climbing in Oregon. While sitting down to rest on a ledge, with his gun across his knees, he saw in the canyon below him a gang of Chinese axemen blazing a line of new railroad. It was so far off that the sound of the axes did not even reach him, and in the clear mountain air it looked like a great living picture which ought to have been saved for the entertainment of those who could not do their own mountain climbing in search of the picturesque. "From that moment," said Mr. 4455

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Jenkins, "I think I can date my search for the phantoscope." Mr. Jenkins came to Washington more than a year ago, and has been regularly employed as a stenographer at the lifesaving service division of the treasury. He has worked on his device outside of office hours, and has at length been rewarded with success.

OTHER INVENTIONS BY MR. JENKINS.

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4458

It was about eight months ago that he met his present colleague, Mr. George Armat, who is also an inventor and better supplied with that great requisite for inventions—ready money. Between them they projected the phantoscope. But this is not the only machine which Mr. Jenkins has on hand. He has already perfected an instrument for transferring a photographic image by wire. This is perhaps the most weird and uncanny of all his contrivances. By means of it the image of a man in New York may be thrown upon a ground-glass screen in Philadelphia. This would seem at first sight a very near approach to witchcraft, which a few centuries ago would have probably brought the inventor to the stake. As it now stands, it requires a cable of several strands and the intention of the inventor is now turned toward accomplishing the same thing by means of a single wire. Another of his devices is intended to produce the same mental effect by presenting a succession of colors to the eye as is given by presenting musical notes to the ear. By this means the inventor proposes to produce what he calls "a symphony of colors," and by a certain arrangement of rapidly moving lights to give all the enjoyments of an exquisitely arranged piece of music. This machine, in its crude state, has been shown to some of the inventor's friends, and the effects produced are said to be remarkable.

**Defendants' Exhibit No. 49, Dyer In-** 4459  
**terview in Show World of**  
**April 4, 1908.**

April 4, 1908. THE SHOW WORLD 11

**EDISON COUNSEL TALKS OF MOVING**  
**PICTURE WAR.**

ORANGE, N. J., March 28.—Frank L. Dyer, general counsel for the Edison Manufacturing Company, upon being asked by a Show World representative if he cared to make any further statement in reference to the moving picture situation, said:

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"My attention has just been called to a statement issued by Mr. Kleine and appearing The Show World of March 21, I have nothing to retract from my original characterization of the Latham patent a 'a joke in the business.' The Latham patent was granted August 26, 1902, and according to the people who are now affirming its validity it has been infringed by everyone since that time. Why was it not litigated in the final hearing as was done with the Edison camera patent? Obviously, because its original owners thought so little of its validity that they did not care to incur the expense of a suit.

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"I have been familiar with this patent ever since its issue, and a gentlemen very closely connected with the corporation by which it was originally owned is a very close personal friend of mine. To oblige him, I several times looked into the Latham patent in the hope that I might be able to persuade myself that it possessed value, but I could not see anything in it. Furthermore, when Mr. Latham's application was pending in the patent office he became involved in interference with

4462

Thomas Armat, and the Court of Appeals of the District of Columbia decided in that interference that Armat and not Latham was the first inventor. As a result of this controversy all that Latham was able to obtain from the patent office was a very limited patent, and even as to this limited subject matter I regard the patent as utterly invalid.

ADMITS KLEINE IS CORRECT; BUT—

4463

“Mr. Kleine’s statement that the suit on the first reissue of the Edison film patent was withdrawn is correct. Two reissues were granted on the same day, one on the camera and the other on the film, and two suits were simultaneously brought on these patents against the American Mutoscope & Biograph company. It was subsequently discovered that a slight clerical error had been made in the first reissue patent for the film, which had to be corrected by again reissuing it. It was for this reason that the suit on the first reissue of the film patent was discontinued.

4464

The procuring of the second reissue necessitated delay, and it was therefore decided to proceed independently with the suit on the camera patent. The camera patent having been sustained by the Court of Appeals, carries with it a very strong presumption in favor of the patent on the film. Mr. Kleine appears to believe that I have doubts concerning this film patent, but in this he is mistaken, and the suits against him are to be pressed with every possible vigor. There are always short delays in the starting of litigations of this sort, but when a suit is once at issue it can be speedily terminated. This is what I propose to do.

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"THE FACTS" PAMPHLET UNFAIR.

"My attention also has been directed to a small pamphlet entitled 'The Facts,' issued by the American Mutoscope & Biograph company. This is so obviously unfair that it hardly requires serious consideration. The Court of Appeals did say, in referring to Mr. Edison, that 'he was not the inventor of the film,' but in this statement they did not use the word 'film' in its present acceptance. They meant simply that Mr. Edison was not the inventor of the original negative film on which the moving pictures are taken, because that film had been independently developed by the Eastman Kodak company. The court has nowhere said that Mr. Edison was not the inventor of the modern moving picture film, and the patent office has granted him a patent on that very thing. It should also be noted that the patent on the film was re-issued by the patent office after the decision of the Court of Appeals and when the patent office had before it the entire record and all of the moving picture art.

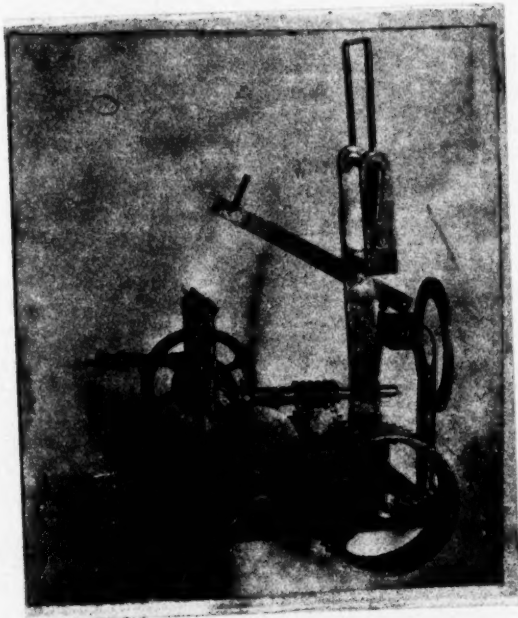
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"Finally, I observe that in this pamphlet the statement is made that the Edison company and others have been compelled to adopt the camera of the Latham patent No. 707,924, which is the patent previously referred to. It is sufficient to say as to this statement that the Latham patent relates to a projecting machine and in no way refers to a camera."

4467



**DEFENDANTS' EXHIBIT No. 50**  
**Photograph of Feeding Mechanism Atlanta Machine**



UNITED STATES CIRCUIT COURT OF APPEALS,  
FOR THE SECOND CIRCUIT.

No. 248—October Term, 1915.

Argued April 4, 1916.

Decided June 15, 1916.

MOTION PICTURE PATENTS COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING COMPANY,  
UNIVERSAL FILM EXCHANGE OF NEW YORK,  
and PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

Appeal from the  
District Court of the  
United States for the  
Southern District of  
New York.

Before COXE and  
ROGERS, Circuit  
Judges, and AU-  
GUSTUS N. HAND,  
District Judge.

Appeal from the District Court of the United States for the Southern District of New York. This cause comes here on an appeal from a decree entered by the District Court of the United States for the Southern District of New York, dismissing the complainant's bill. The complainant is the owner of the patent in suit (No. 707,934) for Motion Picture Projecting Machines, and on June 12, 1912, granted to the Precision Machine Company a license to manufacture and sell these machines for not less than \$150 per machine, and at a royalty of \$5 to the licensor each, with the further restriction that each machine put out by the licensee shall be used (1) solely for exhibiting or projecting motion pictures containing the invention of reissued Letters Patent No. 12,192 leased by a licensee of the licensor while it owns said patent and (2) upon

other terms to be fixed by the licensor and complied with by the user while the said machine is in use and while the licensor owns said patents (which said other terms shall only be the payment of a royalty or rental to the licensor while in use).

The license also provided that a plate should be attached to each machine and such plate was attached in the following form:

" Mfr's		Special
"Serial No.		License No.
" 3557	SIMPLEX	3666
" made	THE PRECISION MACHINE COMPANY	
" by	Patented.	
"No. 576,185, March 2, 1897.	No. 580,749, April 13, 1897.	
"No. 586,953, July 20, 1897.	No. 673,329, April 30, 1901.	
"No. 673,992, May 14, 1901.	No. 707,934, August 26, 1902.	
"	No. 722,382, March 10, 1903.	

" The sale and purchase of this machine gives only the right to use  
 "it solely with moving pictures containing the invention of Reissued  
 "Patent No. 12,192, leased by a licensee of the Motion Picture Patents  
 "Company, the owner of the above patents and reissued patent, while  
 "it owns said patents, and upon other terms to be fixed by the Motion  
 "Picture Patents Company and complied with by the user while it  
 "is in use and while the Motion Picture Patents Company owns said  
 "patents. The removal or defacement of this plate terminates the  
 "right to use this machine.

" MOTION PICTURE PATENTS COMPANY,  
 " New York, N. Y., U. S. A."

Reissued Letters Patent No. 12,192 expired subsequent to the execution of the license by the complainant to the Preci-

sion Machine Company, thereupon the Universal Film Manufacturing Company made a film embodying that invention, and sold it to the Universal Film Exchange, who furnished it for use to the Prague Amusement Company. The 72nd Street Amusement Company became the lawful possessor of a moving picture machine made by the Precision Machine Company. The defendant, Prague Amusement Company, leased the machine from the 72nd Street Amusement Company and used the film furnished to it by the Universal Film Exchange upon the machine in question. The use of the film upon the machine is the act of infringement alleged. The defendants set up three defenses: (1) That the restrictions in the contract of license to the Prague Amusement Company are contrary to public policy, illegal and void, and the machine, therefore, is free from the burden of them. (2) That there is no proof of joint infringement as alleged. (3) That the patent is invalid.

MELVILLE CHURCH and GEORGE F. SCULL, Counsel for Appellant.  
EDMUND WETMORE, JOHN B. STANCHFIELD and OSCAR W. JEFFERY,  
Counsel for Appellees.

AUGUSTUS N. HAND, District Judge:

It was held by this Court in the case of *Victor Talking Machine Company vs. Straus*, 230 Fed., 449, that a license to use a patented talking machine upon payment of an initial royalty to cover the life of the patent and upon condition that the licensee purchase all sound records to be used with the machine from the licensor was valid, even though the license provided that title to the machine should pass to the licensor upon the expiration of the patent if the terms of the license had been observed. The present case differs from that case because here the title to the machine at once passed by the sale of the projecting machine to the 72nd Street Amusement Company. We think this case comes within the doctrine of *Bauer vs. O'Donnell*, 229 U. S., 1, rather than that of *Dick vs. Henry*, 224 U. S., 1. This is especially true since the enactment of the so-called Clayton Bill, which provides:

"That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies, or other commodities, whether patented or unpatented, for use, consumption or resale within the United States, or any territory thereof \* \* \* on the condition, agreement or understanding that the lessee or the purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce."

This Act was not regarded as applicable either in the District Court, or in this Court, in the case of *Victor Talking Machine vs. Straus, supra*, because that case was decided upon a demurrer to the bill upon the face of which no substantial restraint of competition or monopoly in any line of commerce appeared. Here, however, the testimony shows that the complainant has a monopoly under its patents of projecting machines so that if no films not manufactured by complainant can be used upon these machines, the complainant will obtain an absolute monopoly of the film business in spite of the fact that its patent on films has expired. If the prohibitions of the Clayton Act mean anything at all, this case falls within them and the restrictions as to the use of films other than complainant's with the projecting machines are, therefore, void. Indeed, the Report of the Judiciary Committee of the House concerning the Clayton Act shows that its purpose is to reach the film monopoly. A portion of this report, quoted by Judge Dyer in his opinion in *United States vs. United Shoe Machinery Co.*, 227 Fed., 507, is as follows:

"Where the concern making these contracts is already great and powerful, such as the United Shoe Machinery Company, the American Tobacco Company, and the Gener-

al Film Company, the exclusive or 'tying' contract made with local dealers becomes one of the greatest agencies and instrumentalities of monopoly ever devised by the brain of man. It completely shuts out competitors, not only from trade in which they are engaged already, but from the opportunities to build up trade in any community where these great and powerful conditions are appearing under this system and practice."

Judge Sessions has held in the case of *Elliott Machine Co. vs. Center*, 227 Fed., 126, that this act applies to contracts made before the passage of the act, and we think his opinion justified by decisions of the Supreme Court on which he relied. *Louisville & Nashville Railroad Co. vs. Mottley*, 219 U. S., 467; *Armour Packing Co. vs. United States*, 209 U. S., 56; *Philadelphia, Baltimore & Washington R. R. vs. Schubert*, 224 U. S., 603. In the case of *United States vs. United Shoe Machinery Company*, 227 Fed., 507, Judge Dyer reached the same conclusion in regard to the Clayton Act.

Inasmuch as the contract with the Precision Machine Company involved and restrained interstate commerce, it makes no difference that the particular act of infringement occurred within the State of New York, and the prohibitions of the Clayton Act apply.

*Marienetti vs. United Booking Offices*, 227 Fed., 170;  
*Nash vs. United States*, 229 U. S., 373.

It is urged that the defendant, Prague Amusement Company, cannot rely upon the license and repudiate its terms. It does not rely upon the license, but obtained a lease of the machine from the owner, the 72nd Street Amusement Company, which acquired it after having paid the purchase price, and thus freed the machine from the unlawful restrictions. The remarks of this Court upon the motion for a stay pending the decision of the appeal from Judge Dickinson's decree in the criminal prosecution for violation of the Sherman Act, 225 Fed., 800, would be applicable to the case if the restrictions we have held il-

legal had been held valid. Then it would have been true that the defendant who was using the patented article under a license could not question the validity of the patent, or claim it lacked invention. These remarks are not applicable when the restrictions are held invalid and the article having been thus freed from all restrictions may be used at the will of the licensee.

In view of the foregoing considerations it is unnecessary to discuss the other defenses raised by the defendants, and the decree dismissing the bill is affirmed.

At a Stated Term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the Court Rooms in the Post Office Building in the City of New York, on the 25th day of June, one thousand nine hundred and sixteen.

Present—Hon. ALFRED C. COXE,  
 Hon. HENRY WADE ROGERS,  
 Circuit Judges.  
 Hon. AUGUSTUS N. HAND,  
 District Judge.

MOTION PICTURE PATENTS COMPANY, Complainant-Appellant,  vs.  UNIVERSAL FILM MANUFACTURING COMPANY, <i>et al.</i> , Defendants-Appellees.	}
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Appeal from the District Court of the United States for the Southern District of New York.

This cause came on to be heard on the transcript of record from the District Court of the United States, for the Southern District of New York, and was argued by counsel.

ON CONSIDERATION WHEREOF, it is now hereby ordered, adjudged and decreed that the decree of said District Court be, and it hereby is, affirmed with costs.

H. W. R.

It is further ordered that a mandate issue to the said District Court in accordance with this decree.

1499

ENDORSED

UNITED STATES CIRCUIT  
COURT OF APPEALS  
SECOND CIRCUIT

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M. P. P. Co.  
vs.  
Universal Film Co.

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ORDER FOR MANDATE.

United States Circuit Court  
of Appeals Second Circuit  
Filed Jun 26, 1916 William  
Parkin, Clerk.

## UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SECOND CIRCUIT.

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MOTION PICTURE PATENTS COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING COMPANY,  
UNIVERSAL FILM EXCHANGE OF NEW YORK,  
and PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

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## PETITION FOR REHEARING.

TO THE HONORABLE THE JUDGES OF THE UNITED STATES CIRCUIT  
COURT OF APPEALS FOR THE SECOND CIRCUIT.

And now comes the complainant-appellant and prays that it may be accorded a rehearing and an adjudication upon the following point, referred to in its brief on this appeal, but not passed upon by this Court in its opinion—to wit:

That the use of the Precision machine by defendant Prague Amusement Company, without first complying with the condition as to royalty or rental imposed by complainant on users of machines manufactured under its licenses, constituted an infringement of the patent in suit.

No further hearing in this Court is sought by complainant upon any other point.

A rehearing and an adjudication upon this point is urged for the following reasons:

Complainant's contention as to infringement, as shown by its brief on this appeal, has always been that the use of the Precision

machine by the defendant, Prague Amusement Company, was an unauthorized one, and therefore in infringement of the Latham patent, because in using it said defendant did not comply with the following conditions of use imposed by complainant upon users of machines manufactured under its license:

*License Condition No. 1.* The machine shall be used only with motion pictures leased from a manufacturer licensed by the complainant.

*License Condition No. 2.* The user of the machine shall pay to the complainant a royalty or rental (to be fixed by the complainant) while the machine is in use.

Non-compliance by defendant, Prague Amusement Company, with either condition resulted in an unauthorized use of the machine, and, therefore, an infringement by it of the Latham patent.

Apparently this Court does not understand this to be the situation, because, in the statement of the case forming part of its opinion, after referring to the motion picture film procured from the Universal concerns by the defendant, Prague Amusement Company, and used by it on the Precision machine, it says:

"The use of the film upon the machine is the act of infringement alleged."

This is not the fact, and the finding of this Court, based thereon, as to the issue of infringement, is erroneous and unjust to complainant.

It is true that the Universal concerns were not licensees of the complainant, and that, therefore, the motion pictures procured from them by the Prague Amusement Company were not leased by the latter from a licensee of the complainant.

It is true also that in using these motion pictures on the Precision machine the Prague Amusement Company was guilty of non-compliance with the terms of License Condition No. 1.

Its non-compliance, however, did not end there, because it did not pay royalty or rental to complainant before using the Precision machine. In neglecting to do so it was guilty also of non-compliance with License Condition No. 2, and, therefore, of unauthorized use of the Precision machine and of infringement of the Latham patent.

And its co-defendants were contributing infringers, not merely because the film or motion pictures furnished by them were not manufactured by a licensee of complainant, but because, regardless of this fact and on account of its non-compliance

with License Condition No. 2, the use of the Precision machine was unauthorized and an act of infringement, to which these co-defendants knowingly contributed by "supplying motion pictures for use on such" machine, which was "being used without license" (Record, pages 746-9).

THERE IS NO JUSTIFICATION, THEREFORE, FOR THE SELECTION MADE BY THIS COURT OF NON-COMPLIANCE BY THE PRAGUE AMUSEMENT COMPANY WITH LICENSE CONDITION NO. 1, AS THE BASIS FOR THE CHARGE OF INFRINGEMENT AND FOR DETERMINING THE ISSUE OF INFRINGEMENT ACCORDINGLY.

The basis for the charge of infringement is, as before stated, non-compliance by the Prague Amusement Company with the License Conditions Nos. 1 and 2 *or either of them*. In other words, use of the machine in such circumstances was outside the license to which the machine was subject, and, therefore, just as much an act of infringement as if the machine had never been licensed.

The determination of the issue of infringement in favor of defendants cannot be predicated, as this Court predicates it, upon a finding in their favor as to only one of the complainant's two license conditions. It can be predicated only upon a finding in their favor as to both.

This Court, in finding for defendants as to License Condition No. 1, and therefore as to the infringement issue, has entirely overlooked and therefore makes no adjudication whatever as to non-compliance with License Condition No. 2, which is of paramount importance on this issue.

The issue of infringement cannot be properly determined, without such an adjudication, and complainant is clearly entitled to it as a matter of right. A denial of it would be tantamount to a denial of justice to complainant.

If such adjudication be in its favor, the adjudication of the infringement issue must, of necessity, also be in its favor.

LICENSE CONDITION NO. 2 IS NOT OPEN TO THE CRITICISM EXPRESSED BY THIS COURT WITH SPECIFIC REFERENCE TO LICENSE CONDITION NO. 1, WHICH LATTER IT VIEWS AS VOID.

The two license conditions are essentially different, License Condition No. 1 is in terms and in effect a purely restrictive one,

as to use of the machine. License Condition No. 2 is not, in any sense, a restrictive one as to use of the machine or otherwise. It therefore does not come within the prohibitions of the Sherman Act or Clayton Act or the decision in *Bauer vs. O'Donnell* or the decisions in other cases dealing with conditions imposed by patent owners on purchasers or users of machines manufactured or licensed by such patent owners.

The royalty or rental condition expressed in License Condition No. 2 is the commonest kind of a license condition imposed by patent owners and the legality of such a condition has never been questioned, under anti-trust laws, or any other laws dealing with matters of public policy, and this for the reason, among others, that it obviously has no effect in restraining trade or lessening competition.

These statements are perhaps unnecessary. They are made simply out of abundant caution, *first*, because the general language in that part of the opinion of this Court referring to the case of *Bauer vs. O'Donnell* is possibly open to the inference that it is the view of this Court that License Condition No. 2 is, like License Condition No. 1, void and non-enforceable under that decision, and in view of the Sherman Act or Clayton Act or both of them, and, *second*, because that part of the opinion of this Court referring specifically to License Condition No. 1, particularly when it is taken in connection with the concluding paragraph of its opinion, is possibly open to the inference that it is the view of this Court, and that this Court intended to decide, that License Condition No. 1, being, in its opinion, void, the complainant's license agreement, of which it forms part, is void as a whole, which of course would include License Condition No. 2, also forming part of such license agreement.

This, however, is not complainants' understanding of the Court's opinion.

"It is laid down by Chitty as the result of the cases, and his authorities support the statement, 'that agreements in restraint of trade, whether under seal or not, are divisible; and, accordingly, it has been held that when such an agreement contains a stipulation which is capable of being construed divisibly, and one part thereof is void as being in restraint of trade, whilst the other is not, the Court will give effect to the latter, and will not hold the agreement to be void altogether.'" *Oregon R. and N. Co. vs. Winsor*, 20 Wall., 64-72.

See also *U. S. Co. vs. Griffin Co.* (126 Fed., 364).

Another matter for consideration by this Court in this connection is that if the complainant's license agreement with the Precision Machine Company had been held to be void as a whole by this Court, the Precision Machine Company's manufacture and sale of machines would have been unlawful *ab initio* and the use of every machine purchased from it unlawful and an infringement because legally unauthorized.

THE DEFENDANT, PRAGUE AMUSEMENT COMPANY, TOOK THE PRECISION MACHINE WITH NOTICE OF AND SUBJECT TO LICENSE CONDITION NO. 2.

License are of two kinds—express and implied. The license in this case applying to the Precision machine is an express license. Defendant now prefers to call it an implied license, which it is not. Its reason for doing so apparently is to get away, if possible, from the express license and bring this case within certain decisions dealing with the sale of machines by patent owners without notice of any restrictions as to use or otherwise, in which the courts have held that there was an implied license without any limitation or condition as to use or otherwise. That, however, is not the situation here. The license was not implied but express. It could not be otherwise in view of the patent plate notice.

It was interjected into this case, as an *affirmative defense*, by defendants, in an amendment to their answer, which was really in the nature of a plea (Record, pp. 21-21; p. 33, fol. 99; p. 34, fol. 102; pp. 46, 47, fols. 137-140), and the burden was upon the defendants to prove, not simply the license, but compliance with its conditions by the Prague Amusement Company (Watson vs. Smith, 7 Fed., 350; Jones vs. Berger, 58 Fed., 1006; Foster's Fed. Pr., 4th Ed., Vol. I, p. 545) or, failing that, that it had no notice of such conditions.

The defendants did not discharge this burden.

On the other hand, the defendants' pleadings and proofs show that the defendant, Prague Amusement Company, had notice of License Condition No. 2, or, certainly, notice sufficient to put it on inquiry concerning it.

The answer as originally filed (Record, p. 10) did not rely upon any license at all but simply on the defenses of invalidity and non-infringement usually presented in patent cases. Later, however,

the license was pleaded, *as an affirmative defense*, by amendment to the answer, in the course of which the defendants, referring to the use of the Precision (or "Simplex") machine by the Prague Amusement Company, averred that

"The said use of said machine was, as the defendants allege, under a license from the plaintiff under said letters patent No. 707,934."

In their proofs the defendants, in support of this averment, showed, among other things, that the Precision machine, at the time the defendant Prague Amusement Company leased it had upon it the patent plate referred to in the opinion of the Court. The notice on this plate, which is necessarily brief, contained a general statement of License Condition No. 1 and a general reference to License Condition No. 2, to wit, "other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it (the machine) is in use" (Record, page 1073).

The defendant also offered in evidence, in further support of the averment just referred to, a copy of the license from the complainant to the Precision Machine Company, under which the Precision machine was manufactured and sold, and which license, referring to the "other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it (the machine) is in use," provided that the same "shall only be the payment of a royalty or rental to the licensor while in use" (Record, page 1074).

In the course of the trial defendants' counsel stated (Record, page 47):

"We claim that we have a license by reason of the fact that that machine was manufactured under a license."

Considering simply the defendants' pleadings and proofs, there can be no question that the defendant, Prague Amusement Company, took the Precision machine subject to the patent plate notice, and that it knew that the "other terms" in this notice meant royalty or rental.

There is no proof to the contrary, but, even if there were, ignorance of these facts would not relieve the defendant Prague Amusement Company from the necessity of compliance with License Condition No. 2 because it could have readily ascertained the facts, including the amount of the rental or royalty, by proper inquiry, which, under the authorities, it was its duty to make:

"The terms of the license which the seller gave to the purchasers were sufficient to put them upon inquiry, and it is

quite obvious that the means of knowledge were at hand, and that if they had made the least inquiry they would have ascertained that their grantor could not give them any title to use the machine beyond the period of fourteen years from the date of the original letters-patent, as he was only a licensee and never had any power to sell a machine so as to withdraw it indefinitely from the operation of the protection secured by the patent" (Mitchell vs. Hawley, 16 Wall., 544).

This opinion was quoted with approval in Dick vs. Henry, 224 U. S., 1.

"Notice of facts which would incite a man of ordinary prudence to an inquiry under similar circumstances is notice of all the facts which a reasonably diligent inquiry would disclose" (Coder vs. M'Pherson, 152 Fed., 951, 953).

"The defense of a *bona fide* purchase includes the concept of a lack of notice and the burden of pleading and of proof of this absence of notice rests upon the one making such a defense. \* \* \*

"The facts already stated and others not necessary to detail, demonstrate that the appellant, at and before the time the conveyances were made to it, was not without notice of facts which should have incited a person of reasonable prudence to an inquiry, and this inquiry, would have disclosed the fraudulent character of the entries" (Stonebraker-Zea Cattle Co. vs. United States, 220 Fed., 99, 101).

"The contractors, Campbell & O'Keefe, knew at the time they made the contract for the erection of the building that Miss Patterson was not the owner of the lots, but only a lessee of Mrs. Mellon. When they entered into the contract they were chargeable with notice, not only of all matters which they knew, or which were of record, but of all facts which by the exercise of reasonable diligence they could have ascertained. By inquiry of Mrs. Mellon, the lessor, they could have learned the terms of the lease before they entered into the contract. Coder vs. McPherson, 152 Fed., 951, 82 C. C. A., 99; 2 Pomeroy's Eq. Jurisprudence (3d Ed.), 597. Failing to exercise reasonable diligence to ascertain that fact, they cannot appeal to the conscience of the chancellor and plead their failure to exercise reasonable diligence as an excuse. Ketchum vs. St. Louis, *supra*" (Mellon vs. St. Louis Union Trust Co., 225 Fed., 693, 703).

IF THE PROOFS CONCERNED WITH LICENSE CONDITION No. 2, AND KNOWLEDGE OR IGNORANCE THEREOF, AND COMPLIANCE OR NON-COMPLIANCE THEREWITH, BY DEFENDANT, PRAGUE AMUSEMENT COMPANY, ARE DEFECTIVE, THE DEFENDANTS, AND NOT THE COMPLAINANT, MUST BE PREJUDICED THEREBY.

In this connection attention is called to the fact that, notwithstanding the burden was upon defendant to show compliance, or explain non-compliance, with License Condition No. 2 by defendant, Prague Amusement Company, the complainant proffered testimony (Record, pages 50-56; pages 63, 64, X21), which was rejected by the Court below on defendants' objection of irrelevancy and immateriality, and which, if admitted, would have disclosed the details of complainant's licensing system (Crown Cork & Seal Co. vs. Brooklyn Bottle Stopper Co., 172 Fed., 225, 228; affirmed by the Circuit Court of Appeals of this circuit, 200 Fed., 592), and also actual knowledge thereof by the trade, generally, including the defendants here. The proofs proffered by complainant, though technically unnecessary if the burden be on defendant, as complainant contends it is under the authorities, to prove lack of knowledge, was clearly relevant and material, particularly when it is considered that practically all of the motion picture projecting machines used in the United States are used under complainant's license system (Record, page 60, Re-d. Q146).

But, whether complainant be right or wrong in its view as to where the burden rested, it should not be prejudiced in this Court by the absence of testimony as to these facts. If this Court should disagree with the complainant as to where the burden rested, then, in view of the rejection by the Court below of the testimony proffered by complainant, this Court should, in justice to complainant, remand this case to the Court below for further proceedings as to this branch of it.

#### IMPORTANCE TO COMPLAINANT OF THE REHEARING AND ADJUDICATION SOUGHT BY THIS PETITION.

In one respect this case is like that of *Dick vs. Henry*. In the latter it appears that the complainant's machines were disposed of substantially without profit to it and that that fact was considered

by the Court as having an important bearing upon the determination of the case, because it showed that the complainant had a substantial financial interest in the license restriction which limited the use of the machines to ink to be supplied by it and on which it realized its real profit. This is identically the situation here. All the complainant receives from the manufacturers licensed by it to make and sell machines is \$5.00 per machine or approximately 3% of the minimum selling price, \$150 (Record, page 1079, fol. 3235; page 1084, fol. 3251), so that its machines are disposed of to users substantially without profit to itself in the sale thereof, complainant being dependent for its real profit (under License Condition No. 2) upon the continuing royalty or rental payable to it by the users of such machines. No sane patent owner would accept, and it is inconceivable that a court would place him in a position where he would have to accept, as the financial return for the use of his invention by others, a paltry 3% of the selling price of machines embodying it, particularly if the invention be as important as that of the Latham patent which, as shown by the proofs, is embodied in practically every moving picture machine used in the United States (Record, page 60, Re-d. Q146).

The importance of a patent owner's financial interest, in license conditions imposed by him, in the determination of infringement suits based on such conditions, is further evidenced by the opinion in *Bauer vs. O'Donnell*, in which the complainant's lack of financial interest in the maintenance of re-sale prices was commented on by the Supreme Court and was one of the controlling factors in the decision against the complainant.

### **In Conclusion.**

Your petitioner believes that if an opportunity be granted it for full argument on the point heretofore stated, it will be able to convince this Court that the decision in this case should not be allowed to stand.

And your petitioner, as in duty bound, will ever pray.

MOTION PICTURE PATENTS CO.,

By GEORGE F. SCULL,  
Counsel for Petitioner.

MELVILLE CHURCH,  
of Counsel.

George F. Scull certifies that he is of counsel for the Motion Picture Patents Company, petitioner and appellant in the above entitled cause; that in his opinion the above petition is well founded, both in point of law and on question of fact, and is deserving of judicial consideration, and that the same is not interposed for delay.

New York, June 26, 1916.

GEORGE F. SCULL.

UNITED STATES CIRCUIT COURT OF APPEALS,  
FOR THE SECOND CIRCUIT.

No. 248—October Term, 1915.

Petition filed June 26, 1916.

Decided Aug. 4, 1916.

MOTION PICTURE PATENTS COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING COMPANY,  
UNIVERSAL FILM EXCHANGE OF NEW YORK,  
and PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

Appeal from the  
District Court of the  
United States for the  
Southern District of  
New York.

Before COXE and  
ROGERS, Circuit  
Judges, and AU-  
GUSTUS N. HAND,  
District Judge.

PETITION FOR REHEARING.

PER CURIAM:

The appellant seeks a re-argument upon the question whether the Prague Amusement Company did not infringe by not complying with the condition as to royalty or rental imposed by the appellant on users of machines manufactured under its licenses.

The sale of the projecting machine carried with it, in the absence of any restriction, an implied license of use. *Mitchell vs. Hawley*, 16 Wall., at page 547. The notice which was attached attempted to impose the condition that it should only be used with films containing the invention of a patent which had ex-

ired "and upon other terms to be fixed by the Motion Picture Patents Company." The condition as to use only with the specified films we have held illegal for the reasons given in our opinion heretofore rendered. The condition as to which re-argument is desired relating to a continuing royalty was not brought to the notice of the defendants and cannot, therefore, be regarded as limiting the implied license which accompanied the sale of the machine. (*Cortelyou vs. Johnson*, 107 W. S., 196; *Lovell-McConnell Mfg. Co. vs. Waite Auto Supply Co.*, 198 Fed., 133.) The clause "upon other terms to be fixed" in no way specified the nature of these terms and in particular in no way mentioned a continuing royalty, or the amount thereof. There is no evidence, however, that any "other terms" were ever fixed or demanded. We think such a vague condition insufficient to limit the implied right of user passing to the vendee of the machine, and consequently unenforceable.

The appellant offered evidence at the trial, which was excluded, that the Prague Amusement Company had knowledge of the terms upon which the Motion Picture Patents Company was accustomed to grant permission to use a machine put out by its licensed manufacturers, but this evidence, had it been allowed, would not have obviated the difficulty with the form of the notice. If the terms that were customary had been known, there was nothing in the notice or elsewhere to prevent the appellant from varying the royalty as to nature or amount. Such a condition is too indefinite for enforcement, though a notice of a precise amount to be paid might be perfectly good. The notice affixed to the machine was so broad as to allow the patentee to fix any terms he might choose and to be repugnant to all rights which the owner of the machine might have obtained by his purchase and implied license.

The motion for reargument is denied.

At a stated Term of the United States Circuit Court of Appeals for the Second Circuit, held at the court rooms in the Post Office Building, City of New York, on the 14th day of August, 1916.

Present—Hon. ALFRED C. COXE,  
Hon. HENRY WADE ROGERS,  
Circuit Judges.  
Hon. AUGUSTUS N. HAND,  
District Judge.

MOTION PICTURE PATENTS COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING COMPANY,  
UNIVERSAL FILM EXCHANGE OF NEW YORK,  
and PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

A petition for a rehearing having been filed herein by counsel for appellant.

Upon consideration thereof it is

ORDERED that said petition be and hereby is denied.

ALFRED C. COXE,  
U. S. J.

Endorsed :—United States Circuit Court of Appeals, Second Circuit.—  
Filed Aug. 16, 1916. William Parkin, Clerk.

United States of America,  
Southern District of New York. } ss.:

I, William Parkin, Clerk of the United States Circuit Court of Appeals for the Second Circuit, do hereby certify that the foregoing pages, numbered from 1 to 1512 inclusive (2 vols.), contain a true and complete transcript of the record and proceedings had in said Court, in the case of Motion Picture Patents Company, against Universal Film Manufacturing Company, as the same remain of record and on file in my office.

IN TESTIMONY WHEREOF, I have caused the seal of said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this 28th day of September, in the year of our Lord One Thousand Nine Hundred and Sixteen, and of the Independence of the said United States the One Hundred and Forty-first.

(Seal)

WM. PARKIN,  
Clerk.

UNITED STATES OF AMERICA, ss:

[Seal of the Supreme Court of the United States.]

The President of the United States of America to the Honorable the Judges of the United States Circuit Court of Appeals for the Second Circuit, Greeting:

Being informed that there is now pending before you a suit in which Motion Picture Patents Company is appellant, and Universal Film Manufacturing Company, Universal Film Exchange of New York, and Prague Amusement Company are appellees, which suit was removed into the said Circuit Court of Appeals by virtue of an appeal from the District Court of the United States for the Southern District of New York, and we, being willing for certain reasons that the said cause and the record and proceedings therein should be certified by the said Circuit Court of Appeals and removed into the Supreme Court of the United States,

Do hereby command you that you send without delay to the said Supreme Court, as aforesaid, the record and proceedings in said cause, so that the said Supreme Court may act thereon as of right and according to law ought to be done.

Witness the Honorable Edward D. White, Chief Justice of the United States, the first day of November, in the year of our Lord one thousand nine hundred and sixteen.

JAMES D. MAHER,

*Clerk of the Supreme Court of the United States.*

[Endorsed:] File No. 25,545. Supreme Court of the United States, No. 715, October Term, 1916. Motion Picture Patents Company vs. Universal Film Manufacturing Company et al. Writ of Certiorari. United States Circuit Court of Appeals, Second Circuit. Filed Nov. 10, 1916. William Parkin, Clerk.

In the United States Circuit Court of Appeals for the Second Circuit.

No. 248.

MOTION PICTURE PATENTS COMPANY, Appellant,

vs.

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL FILM Exchange of New York, and Prague Smusement Company, Appellees.

*Stipulation.*

It is hereby stipulated and agreed that the Transcript already filed in the Clerk's office of the Supreme Court of the United States with

the Petition for the Writ of Certiorari, be taken as a return to the Writ of Certiorari issued out of said Supreme Court on the 1st day of November, 1916.

MELVILLE CHURCH,  
*Counsel for Appellant.*  
OSCAR W. JEFFREY,  
*Counsel for Appellees.*

Endorsed: In the United States Circuit Court of Appeals for the Second Circuit. Motion Picture Patents Company, Appellant, against Universal Film Manufacturing Company, Universal Film Exchange of New York and Prague Amusement Company, Appellees. No. 248. Stipulation. United States Circuit Court of Appeals, Second Circuit. Filed Nov. 10, 1916. William Parkin, Clerk.

To the Honorable the Supreme Court of the United States, Greeting:

The record and all proceedings whereof mention is within made having lately been certified and filed in the office of the Clerk of the Supreme Court of the United States, a copy of the stipulation of counsel is hereto annexed and certified as a return to the writ of certiorari issued herein.

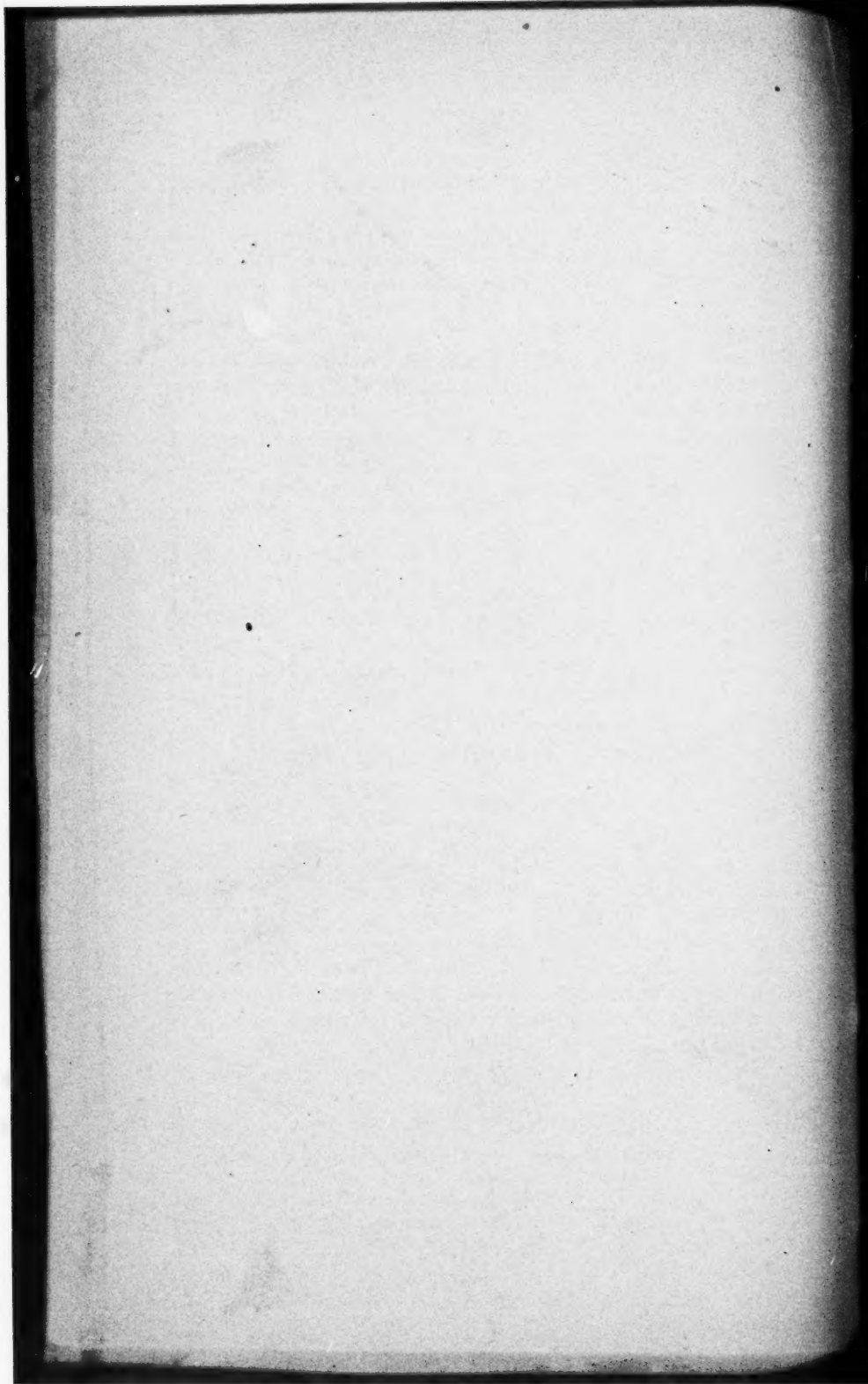
Dated New York November 10, 1916.

[Seal United States Circuit Court of Appeals, Second Circuit.]

WM. PARKIN,  
*Clerk of the United States Circuit Court  
of Appeals for the Second Circuit.*

[Endorsed:] 715/25545. United States Circuit Court of Appeals, Second Circuit. Motion Picture Patents Co. v. Universal Film Mfg. Co. Return to Certiorari.

[Endorsed:] File No. 25,545. Supreme Court U. S. October Term, 1916. Term No. 715. Motion Picture Patents Co., petitioner, vs. Universal Film Manufacturing Co. et al. Writ of certiorari and return. Filed November 13, 1916.



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# Supreme Court of the United States <sup>1</sup>

OCTOBER TERM, 1916.

MOTION PICTURE PATENTS  
COMPANY,

Petitioner,

vs.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM  
EXCHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Respondents.

In Equity.

2

To Wetmore & Jenner, Counsel for Respondents:

Gentlemen:

Please take notice that a petition, praying for a writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit, a copy of which is hereto annexed, will be submitted to the Supreme Court of the United States, for the decision of that Court thereon, on the 23rd day of October, 1916, at the Court Room, in the Capitol, in the City of Washington, District of Columbia, at the opening of the Court on that day, or as soon thereafter as counsel may be heard. 3

Dated, New York, October 6, 1916.

MELVILLE CHURCH,

Counsel for Petitioner,

McGill Building,

Washington, D. C.

Service acknowledged this 6th day of October,  
1916.

WETMORE & JENNER,

Counsel for Respondents.

4

SUPREME COURT  
OF THE UNITED STATES,  
OCTOBER TERM, 1916.

5  	MOTION PICTURE PATENTS COMPANY, vs. UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL FILM EXCHANGE OF NEW YORK, and PRAGUE AMUSEMENT COMPANY, Respondents.	{	In Equity.
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**Petition for Writ of Certiorari from  
the Supreme Court of the United  
States to the United States Circuit  
Court of Appeals for the Second  
Circuit.**

To the Honorable, the Chief Justice and Associate  
Justices of the Supreme Court of the United  
States:

6

Your petitioner, MOTION PICTURE PAT-  
ENTS COMPANY, respectfully represents:

I. That it is a corporation duly created and  
existing under the laws of the State of New Jersey.

II. That it is the owner of patent No. 707,934,  
granted to Woodville Latham, August 26, 1902  
(upon an application filed June 1, 1896), for Im-  
provements in Projecting Kinetoscopes, or what

have come to be known as "Motion Picture Project-  
ing Machines." This patent describes and claims  
novel means for moving a quantity of motion  
picture film having considerable bulk through a  
motion picture machine, with an intermittent  
movement, in such manner as not to expose the  
film to excessive strain and wear and tear, and  
with a regular, uniform and accurate feed. 7

III. That your petitioner has not itself made,  
used or sold machines embodying the invention of  
said patent, but has sought to derive its profit  
from said patent (1) by licensing the *manufacture*  
of such machines by others on payment of a small  
royalty, and (2) by licensing the *use* of such ma- 8  
chines by the purchasers thereof on payment of  
a small additional royalty *while in use*.

IV. That pursuant to its above outlined policy  
petitioner, on June 12, 1912, granted to the Preci-  
sion Machine Company, a corporation of New  
York, the right and license

(page 1077, C. C. A. Record)

"to manufacture and sell motion picture ex- 9  
hibiting or projecting machines embodying one  
or more of the inventions described in the said  
United States Letters Patent Nos. \* \* \*  
707,934 \* \* \*

coupled with the restriction that each machine  
put out by the licensee should be sold only

(page 1080)

"under the restriction and condition that such  
exhibiting or projecting machines shall be used

- 10 (1) solely for exhibiting or projecting motion pictures containing the invention of reissued letters patent No. 12,192, leased by a licensee of the licensor while it owns said patents, and (2) upon other terms to be fixed by the licensor and complied with by the user while the said machine is in use and while the licensor owns said patents (which other terms shall only be the payment of a royalty or rental to the licensor while in use),”

provided that

- 11 (page 1081)

“the licensee further covenants and agrees that the licensee will attach in a conspicuous place to each and every exhibiting and projecting machine of the licensee’s manufacture, sold by the licensee, except for export, after the date hereof, a plate showing plainly not only the dates of the letters patent under which the said machine is licensed, but also the following words and figures:

- 12
- |            |     |
|------------|-----|
| SERIAL NO. |     |
| PATENTED   | NO. |

The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of reissued patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Pat-

ents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine." 13

The license further provided that the licensee manufacturer should pay the licensor

(page 1079)

"on each such machine capable of exhibiting or projecting by transmitted light, motion pictures on film of a width greater than approximately one inch (1 in.) a royalty of five dollars (\$5)." 14

V. That every machine put out by the Precision Machine Company under its said license from your petitioner had attached to it the agreed license plate bearing the words set forth in the license, said license plate purporting to have emanated from your petitioner (page 1073).

VI. That the respondent, Prague Amusement Company, since November 2, 1914, has, without payment of royalty to your petitioner, been using a machine procured from petitioner's licensee, Precision Machine Company, and bearing the license plate aforesaid (pages 63, 736), in connection with unlicensed film made by the respondent, Universal Film Manufacturing Company (pages 736, 746), the said unlicensed film so made having been delivered to the respondent, Universal Film Exchange of New York (pages 736, 748) and by the 15

16 latter delivered to the respondent, Prague Amusement Company for use by the latter, as aforesaid.

VII. That notice of the fact that Precision Machine Company was a licensee of your petitioner and of the terms and conditions under which alone the said machine put out by it under its license could be used, was brought home to the respondent, Prague Amusement Company, by the notice itself on the license plate attached to said machine, and that specific notice that the said machine was being used in an infringing manner was given to all the respondents (pages 745, 746, 748, 753, 735 and 59),  
17 but thereafter and in disregard of said notice respondents continued their said infringing practices.

VIII. That on the 18th day of March, 1915, your petitioner filed in the United States District Court for the Southern District of New York, its bill of complaint against the respondents, Universal Film Manufacturing Company, Universal Film Exchange of New York, and Prague Amusement Company, alleging infringement of its said patent.

IX. That the said respondents duly filed their  
18 answer to said bill of complaint, and at the trial urged in defense, *inter alia*, a license in the Prague Amusement Company to use the said machine furnished it by Precision Machine Company, and the alleged illegality of the conditions of use imposed by the agreement between your petitioner and Precision Machine Company and by the license plate attached to the said machine itself.

X. That respondent's contentions were sustained by the District Court, Judge Hough presiding, and petitioner's bill was dismissed; and that the United States Circuit Court of Appeals for the Second Cir-

cuit, on appeal, affirmed said decree (page 1499) and denied an application for a rehearing (page 1512). 19

Copies of the opinions filed in the District Court and in the Court of Appeals are appended hereto, the opinion of the District Court being marked "Exhibit A"; the opinion of the Court of Appeals on the original hearing being marked "Exhibit B," and the opinion of the Appellate Court on the rehearing being marked "Exhibit C."

XI. That consideration of these opinions shows that petitioner's contention as to infringement is and has always been that the use of the Precision machine by the respondent, Prague Amusement Company, was an unauthorized one and therefore an infringement of the Latham patent, because, in using said machine the Prague Amusement Company did not comply with the following conditions of use imposed by petitioner upon users of machines, namely: 20

*License Condition No. 1.* That the machine should be used only with motion pictures leased from a manufacturer licensed by the petitioner; and 21

*License Condition No. 2.* That the user of the machine should pay to petitioner a royalty or rental (to be fixed by petitioner) while the machine was in use.

XII. That non-compliance by respondent, Prague Amusement Company, with either condition, resulted, as petitioner claims, in an unauthorized use of the machine, and therefore an infringement of the Latham patent.

- 22 Both of these conditions the Court of Appeals holds are unlawful and unenforceable, and as constituting no lawful restriction upon the right of use of the machine purchased from the Precision Company.

- XIII. That your petitioner contends that the said conditions of use imposed are lawful within the principles laid down by this Court in *Henry vs. Dick*, 224 U. S., 1, and by the Court of Appeals for the Second Circuit in *Victor Talking Machine Co. vs. Straus*, 230 Fed., 449; while the Court of Appeals holds that the *Dick* case is inapplicable and that the case of *Bauer vs. O'Donnell*, 229 U. S., 1, is controlling, especially in view of the Clayton Act, of October 15th, 1914 (38 Stat. at L., pages 730, 731).
- 23

- XIV. That the Victor Talking Machine case referred to is now before this Court for review, on certiorari, being case No. 374 on the docket, and your petitioner contends that if the principles held by the United States Circuit Court of Appeals for the Second Circuit to be controlling in that case are upheld by this Court they will require a determination favorable to petitioner in this case if the same is taken up by this Court for review.
- 24

XV. For these reasons and because the decree of the Court of Appeals in this case is believed to have been erroneous and contrary to right, your petitioner prays that a writ of certiorari may be issued out of and under the seal of this Court directed to the said United States Circuit Court of Appeals for the Second Circuit demanding the said

Court to certify and send to this Court, on a day certain to be therein designated, a full and complete transcript of the record of all proceedings in said Circuit Court of Appeals in the said case therein entitled Motion Picture Patents Company, complainant-appellant, vs. Universal Film Manufacturing Company, Universal Film Exchange of New York, and Prague Amusement Company, defendants-appellees, and which was In Equity, No. 248, of the October Term, 1915, of said Court, to the end that the said case may be certified and determined by this Court as provided in Section 240 of the Act of Congress entitled "An act to codify, revise and amend the laws relating to the judiciary, approved March 3, 1911," and your petitioner further prays that the said decree of said Circuit Court of Appeals in the said case, and every part thereof, may be reversed by this Court, and that your petitioner may have such other and further relief or remedy in the premises, as to this Court may seem appropriate and in conformity with the judiciary act. 25

Dated, New York, N. Y., October 6, 1916. 26

MOTION PICTURE PATENTS COMPANY,  
By George F. Scull,  
Vice President. 27

MELVILLE CHURCH,  
Counsel for Petitioner.

28 State of New York }  
County of New York } ss.:

George F. Scull, being duly sworn, deposes and says that he is the Vice President of Motion Picture Patents Company, the petitioner herein; that he has read the foregoing petition by him subscribed and knows the contents thereof and that the same is true of his own knowledge except as to the matters therein stated to be on information and belief, and as to those matters he verily believes it to be true.

29

GEORGE P. SCULL.

Sworn to and subscribed before me this 6th day of October, 1916.

GEORGE E. BROWN,  
Notary Public, Richmond County,  
Certificate filed in New York County No. 179,  
(Seal) New York Register No. 7223,  
Term expires March 30, 1917.

30

**Exhibit A.**

31

DISTRICT COURT OF THE UNITED STATES,

Southern District of New York.

MOTION PICTURE PATENTS COM-  
PANY

vs.

UNIVERSAL FILM MANUFACTUR-  
ING COMPANY, UNIVERSAL FILM  
EXCHANGE and PRAGUE AMUSE-  
MENT COMPANY.

32

Final hearing in Equity; action on Patent  
707934.GEORGE F. SCULL and MELVILLE CHURCH, Esqrs.,  
for Plaintiff;OSCAR W. JEFFERY and EDMUND WETMORE, Esqrs.,  
for Defendants.

33

**Memorandum.**

This decision is filed because the discussion at bar has not been preserved by the stenographer, and it seems advisable to put on file my reasons for decision in order that the decree may not be misleading.

The following facts appeared: Plaintiff is the owner by assignment, not only of the patent in suit, but of many other patents relating to what is commonly called the Moving Picture art.

34

It entered into an agreement with the Precision Machine Company by which it gave the Machine Company "subject to the covenants, conditions and stipulations hereinafter expressed, the right and license \* \* \* to manufacture and sell picture exhibiting or projecting machines embodying" the invention described in the patent in suit and many other patents. One of the covenants assumed by the Precision Company in respect of machines so sold was that it would "pay royalties as follows," viz., \$5 on each machine of one type, and 3% of the "net retail selling price" on machines of other types.

35

Under the contract this was the only royalty or remuneration collectible by the plaintiff herein from the Precision Company.

The latter Company, however, further covenanted that every machine (of the type here presented) made by it "in the United States" should be "sold \* \* \* under the restriction and condition that such \* \* \* machine shall be used solely for exhibiting or projecting motion pictures containing the inventions of re-issued Letters Patent No. 12192, leased by a licensee of the (plaintiff herein) while it owns (the patent in suit), and upon other terms to be fixed by (the plaintiff herein) and complied with by the user while the said machine is in use and while the (plaintiff owns the patent in suit),—which other terms shall only be the payment of a royalty or rental to the (plaintiff herein) while in use."

36

The Precision Company further agreed to attach on each machine so manufactured and sold, a plate showing the Letters Patent under which the said

machine was licensed (including the patent in suit), and also the following legend:

"The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Moion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine."

38

Subsequent to the execution of this agreement Reissued Letters Patent 12,192 expired and the invention thereby covered became public property.

Subsequent to such expiration of said patent the defendant Universal Film Manufacturing Company made a reel of film which embodied the invention of said expired re-issued Letters Patent. That film it sold to the defendant the Universal Film Exchange, which in turn furnished it for use to the defendant the Prague Amusement Company.

39

Also subsequent to the expiration of said re-issued Letters Patent the 72d Street Amusement Company was lawfully in possession of a machine suitable for exhibiting picture film made and sold by the Precision Machine Company embodying the invention of the patent in suit and bearing upon it a plate with the inscription hereinabove set forth.

The 72d Street Amusement Company had as

40

between itself and the Precision Company bought and paid for said machine, and its possession and use thereof were, so far as the Court is informed, lawful and uncomplained of. On November 2d, 1914, the defendant Prague Amusement Company leased from the 72d Street Amusement Company certain property including said machine, and thereafter used said machine for the exhibition of the picture film hereinabove referred to as made by one defendant, sold to the second and leased to the third.

41

This act, viz: the exhibition of said film through, with or by means of said machine, is the act of infringement complained of.

Being of opinion that the limitation on the use of a patented article sold in the manner above set forth is invalid, I have directed a decree to be entered dismissing the bill on that ground alone.

42

Briefly stated, my reasons for this opinion are that there is no distinction, logical or intelligible, to be drawn between a limitation upon the re-sale of a patented article and a limitation upon the use of a patented article contained in a condition subsequent to the contract of sale.

Referring to the decisions, it was my opinion that *Bauer vs. O'Donnell* is so inconsistent with *Dick vs. Henry* that the latter case can no longer be considered as stating the law. This belief I had intimated already in *Great Atlantic &c. Co. vs. Cream of Wheat Co.*, 224 Fed. Rep., at page 559.

The foregoing is a summary of what occurred at bar.

Subsequent to decision rendered, defendants offered a final decree for signature, and plaintiff moved for a re-argument.

The substance of the error said to have been committed is a failure to distinguish between the property in a corporeal thing, eg. a patented machine, and that incorporeal hereditament which is the use of the aforesaid corporeal substance, or the machine.

That error (in the sense of belonging to the minority) may have been committed herein is quite likely, but the point has not been overlooked.

It remains my opinion:

(1) That such attempted severance between corporeal and incorporeal property cannot be lawfully maintained under the patent laws,—nor asserted in an action on the patent,—whatever may be the ultimate limit of permitted contractual arrangements; and also 44

(2) That the attempted reservation or severance here shown is specifically bad in that it attempts not only to confine the use of a machine once sold and delivered to a particular kind of film, but further seeks to render that use subject to any and every restriction or regulation which the patent owner may from time to time choose to make or vary. 45

The reargument is denied and decree signed.

Dec. 31, 1915.

C. M. HOUGH,  
U. S. D. J.

46

**Exhibit B.**UNITED STATES CIRCUIT COURT OF  
APPEALS,

FOR THE SECOND CIRCUIT.

No. 248—October Term, 1915.

Argued April 4, 1916.

Decided June 15, 1916.

Before—COXE and ROGERS, Circuit Judges, and  
AUGUSTUS N. HAND, District Judge.

47

MOTION PICTURE PATENTS  
COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM  
EXCHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

48

Appeal from  
the District  
Court of the  
United States  
for the South-  
ern District of  
New York.

Appeal from the District Court of the United States for the Southern District of New York. This cause comes here on an appeal from a decree entered by the District Court of the United States for the Southern District of New York, dismissing the complainant's bill. The complainant is the owner of the patent in suit (No. 707,934) for Mo-

tion Picture Projecting Machines, and on June 12, 1912, granted to the Precision Machine Company a license to manufacture and sell these machines for not less than \$150 per machine, and at a royalty of \$5 to the licensor each, with the further restriction that each machine put out by the licensee shall be used (1) solely for exhibiting or projecting motion pictures containing the invention of re-issued Letters Patent No. 12,192 leased by a licensee of the licensor while it owns said patent and (2) upon other terms to be fixed by the licensor and complied with by the user while the said machine is in use and while the licensor owns said patents (which said other terms shall only be the payment of a royalty or rental to the licensor while in use).

The license also provided that a plate should be attached to each machine and such plate was attached in the following form:

" Mfr's		Special	
"Serial No.		License No.	
" 3557 .	SIMPLEX	3666	
"made	THE PRECISION MACHINE COMPANY		51
" by	Patented.		
	"No. 576,185, March 2, 1897.		
	"No. 580,749, April 13, 1897.		
	"No. 586,953, July 20, 1897.		
	"No. 673,329, April 30, 1901.		
	"No. 673,992, May 14, 1901.		
	"No. 707,934, August 26, 1902.		
	"No. 722,382, March 10, 1903.		

" The sale and purchase of this machine gives  
 "only the right to use it solely with moving pictures

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"containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine.

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" MOTION PICTURE PATENTS COMPANY,  
" New York, N. Y., U. S. A."

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Reissued Letters Patent No. 12,192 expired subsequent to the execution of the license by the complainant to the Precision Machine Company, thereupon the Universal Film Manufacturing Company made a film embodying that invention, and sold it to the Universal Film Exchange, who furnished it for use to the Prague Amusement Company. The 72nd Street Amusement Company became the lawful possessor of a moving picture machine made by the Precision Machine Company. The defendant, Prague Amusement Company, leased the machine from the 72nd Street Amusement Company and used the film furnished to it by the Universal Film Exchange upon the machine in question. The use of the film upon the machine is the act of infringement alleged. The defendants set up three defenses: (1) That the restrictions in the contract of license to the Prague Amusement Company are contrary to public policy, illegal and void, and the machine, therefore, is free from the burden of them.

(2) That there is no proof of joint infringement as alleged. (3) That the patent is invalid.

MELVILLE CHURCH and GEORGE F. SCULL, Counsel for Appellant.

EDMUND WETMORE, JOHN B. STANCHFIELD and OSCAR W. JEFFERY, Counsel for Appellees.

AUGUSTUS N. HAND, District Judge:

It was held by this Court in the case of *Victor Talking Machine Company vs. Straus*, 230 Fed., 449, that a license to use a patented talking machine upon payment of an initial royalty to cover the life of the patent and upon condition that the licensee purchase all sound records to be used with the machine from the licensor was valid, even though the license provided that title to the machine should pass to the licensor upon the expiration of the patent if the terms of the license had been observed. The present case differs from that case because here the title to the machine at once passed by the sale of the projecting machine to the 72nd Street Amusement Company. We think this case comes within the doctrine of *Bauer vs. O'Donnell*, 229 U. S., 1, rather than that of *Dick vs. Henry*, 224 U. S., 1. This is especially true since the enactment of the so-called Clayton Bill, which provides:

"That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies, or other commodities, whether patented or unpatented, for use, con-

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sumption or resale within the United States, or any territory thereof \* \* \* on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce."

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This Act was not regarded as applicable either in the District Court, or in this Court, in the case of *Victor Talking Machine vs. Straus, supra*, because that case was decided upon a demurrer to the bill upon the face of which no substantial restraint of competition or monopoly in any line of commerce appeared. Here, however, the testimony shows that the complainant has a monopoly under its patents of projecting machines so that if no films not manufactured by complainant can be used upon these machines, the complainant will obtain an absolute monopoly of the film business in spite of the fact that its patent on films has expired. If the prohibitions of the Clayton Act mean anything at all this case falls within them and the restrictions as to the use of films other than complainant's with the projecting machines are, therefore, void. Indeed, the Report of the Judiciary Committee of the House concerning the Clayton Act shows that its purpose is to reach the film monopoly. A portion of this report, quoted by Judge

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Dyer in his opinion in *United States vs. United Shoe Machinery Co.*, 227 Fed., 507, is as follows:

"Where the concern making these contracts is already great and powerful, such as the United Shoe Machinery Company, the American Tobacco Company, and the General Film Company, the exclusive or 'tying' contract made with local dealers becomes one of the greatest agencies and instrumentalities of monopoly ever devised by the brain of man. It completely shuts out competitors, not only from trade in which they are engaged already, but from the opportunities to build up trade in any community where these great and powerful conditions are appearing under this system and practice."

Judge Sessions has held in the case of *Elliott Machine Co. vs. Center*, 227 Fed., 126, that this act applies to contracts made before the passage of the act, and we think his opinion justified by decisions of the Supreme Court on which he relied. *Louisville & Nashville Railroad Co. vs. Mottley*, 219 U. S., 467; *Armour Packing Co. vs. United States*, 209 U. S., 56; *Philadelphia, Baltimore & Washington R. R. vs. Schubert*, 224 U. S., 603. In the case of *United States vs. United Shoe Machinery Company*, 227 Fed., 507, Judge Dyer reached the same conclusion in regard to the Clayton Act.

Inasmuch as the contract with the Precision Machine Company involved and restrained interstate commerce, it makes no difference that the particular act of infringement occurred within the State

of New York, and the prohibitions of the Clayton Act apply.

*Marienelli vs. United Booking Offices*, 227 Fed., 170;

*Nash vs. United States*, 229 U. S., 373.

65 It is urged that the defendant, Prague Amusement Company, cannot rely upon the license and repudiate its terms. It does not rely upon the license, but obtained a lease of the machine from the owner, the 72nd Street Amusement Company, which acquired it after having paid the purchase price, and thus freed the machine from the unlawful restrictions. The remarks of this Court upon the motion for a stay pending the decision of the appeal from Judge Dickinson's decree in the criminal prosecution for violation of the Sherman Act, 225 Fed., 800, would be applicable to the case if the restrictions we have held illegal had been held valid. Then it would have been true that the defendant who was using the patented article under a license could not question the validity of the patent, or claim it lacked invention. These remarks are not applicable when the restrictions are held invalid and the article having been thus freed from all restrictions may be used at the will of the licensee.

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In view of the foregoing considerations it is unnecessary to discuss the other defenses raised by the defendants, and the decree dismissing the bill is affirmed.

**Exhibit C.**

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UNITED STATES CIRCUIT COURT OF  
APPEALS,

FOR THE SECOND CIRCUIT.

No. 248—October Term, 1915.

Petition filed June 26, 1916. Decided Aug. 4, 1916.

Before—COXE and ROGERS, Circuit Judges, and  
AUGUSTUS N. HAND, District Judge.

MOTION PICTURE PATENTS  
COMPANY,  
Complainant-Appellant,

vs.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM  
EXCHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Defendants-Appellees.

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Appeal from  
the District  
Court of the  
United States  
for the South-  
ern District of  
New York.

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PETITION FOR RE-HEARING.

PER CURIAM:

The appellant seeks a re-argument upon the question whether the Prague Amusement Company did not infringe by not complying with the condition as to royalty or rental imposed by the appellant on users of machines manufactured under its licenses.

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The sale of the projecting machine carried with it, in the absence of any restriction, an implied license of use. *Mitchell vs. Hawley*, 16 Wall., at page 547. The notice which was attached attempted to impose the condition that it should only be used with films containing the invention of a patent which had expired "and upon other terms to be fixed by the Motion Picture Patents Company." The condition as to use only with the specified films we have held illegal for the reasons given in our opinion heretofore rendered. The condition as to which a re-argument is desired relating to a continuing royalty was not brought to the notice of the defendants and cannot, therefore, be regarded as limiting the implied license which accompanied the sale of the machine. (*Cortelyou vs. Johnson*, 207 V. S., 196; *Lovell-McConnell Mfg. Co. vs. Waite Auto Supply Co.*, 198 Fed., 133.) The clause "upon other terms to be fixed" in no way specified the nature of these terms and in particular in no way mentioned a continuing royalty, or the amount thereof. There is no evidence, moreover, that any "other terms" were ever fixed or demanded. We think such a vague condition insufficient to limit the implied right of user passing to the vendee of the machine, and consequently unenforceable.

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The appellant offered evidence at the trial, which was excluded, that the Prague Amusement Company had knowledge of the terms upon which the Motion Picture Patents Company was accustomed to grant permission to use a machine put out by its licensed manufacturers, but this evidence, had it been allowed, would not have obviated the difficulty with the form of the notice. If the terms that were customary had been known, there

was nothing in the notice or elsewhere to prevent the appellant from varying the royalty as to nature or amount. Such a condition is too indefinite for enforcement, though a notice of a precise amount to be paid might be perfectly good. The notice affixed to the machine was so broad as to allow the patentee to fix any terms he might choose and to be repugnant to all rights which the owner of the machine might have obtained by his purchase and implied license.

The motion for re-argument is denied.

## SUPREME COURT OF THE UNITED STATES,

OCTOBER TERM—1916.

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MOTION PICTURE PATENTS  
COMPANY,  
Petitioner,

vs.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM  
EXCHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Respondents.

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In Equity.

**BRIEF FOR PETITIONER.**

The following points are urged in support of the foregoing petition:

I. Petitioner did not make, or sell the machine whose use is claimed to be an infringement. It was made by a manufacturing concern that was authorized by the petitioner to make it and that was authorized by the petitioner to sell it for use only upon compliance with certain conditions specified and brought home to the purchaser.

II. The patented machine is a machine for projecting motion pictures and is usable only in connection with motion picture films consisting of long strips of transparent material of indefinite length bearing a succession of photographic impressions of objects in motion.

III. The purchaser of the machine was apprised by the license plate attached to the machine that he could not lawfully use it (1) save with motion picture film leased by a licensee of petitioner and (2) "upon other terms to be fixed" by the petitioner "and complied with by the user while it is in use."

IV. The first condition relating to the use of the machine only in connection with film obtained from specially designated parties has been decided by the Court of Appeals to be a condition violative of the Clayton Act and, therefore, void and unenforceable.

Petitioner, however, denies that this is so, and contends that such condition is lawful and enforceable under the decision of this Court in *Henry vs. Dick*, 224 U. S., 1, and that the Clayton Act is inapplicable, because the petitioner is not "engaged in commerce," within the meaning of the Act, but is a mere holding company whose sole property, patents, is of an incorporeal, intangible nature (*De La Verne Machine Co. vs. Featherstone*, 147 U. S., 209-222) and not susceptible of being made the subject of commerce, within the meaning of the Act, or of the Constitutional provision of which the Act is predicated.

V. The second condition, however, relating to the right of the purchaser to use the patented machine only upon compliance with "other terms to be fixed" by petitioner, is not contended, by any one, to be violative of the Clayton Act and depends for its validity upon its intrinsic merits.

It is not denied that the name plate and the matter inscribed upon it—still on the machine—

were brought to the purchaser's attention, but it is urged by the respondents and by the Courts below, that the notice itself is insufficient because in its reference to the "other terms to be fixed" by the petitioner and to be "complied with by the user while the machine is in use," it does not set out, in detail, what those terms and conditions are.

In this Court citation of authority is hardly needed for the proposition that

"Whatever is notice enough to excite attention and put the party on his guard and call for inquiry is notice of everything to which such inquiry might have led. When a person has sufficient information to lead him to a fact, he shall be deemed conversant of it."

Wood vs. Carpenter, 101 U. S., 135-141.

Shauer vs. Alterton, 151 U. S., 607-622.

When, therefore, the purchaser of the machine in question saw from a perusal of the name plate notice that he could only use it "upon terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use" and saw from the plate that the notice was subscribed "Motion Picture Patents Company, New York, N. Y., U. S. A.," he was put upon inquiry and placed under the legal obligation to seek the Motion Picture Patents Company, at the address given, and ascertain upon what terms he could lawfully use the machine obtained by him from that company's licensee, and he cannot now be heard to say that he did not know what those terms were, when upon inquiry he could have read-

ily ascertained; and to proceed with a use of the machine that was not authorized was to infringe the patent.

The record clearly shows that the terms of use which the prosecution of such an inquiry would have developed would have been

“only the payment of a royalty or rental to the licensor while in use,”

as specifically provided in petitioner's license agreement with the Precision Machine Company, the manufacturer and seller of the machine purchased (page 1081, fol. 3241).

VI. This case, therefore, presents for the determination of this Court the following questions of great public concern, viz.:

1. Whether or not a corporation which is a mere patent-holding company, and that neither makes, uses nor sells the patented article, but only licenses others to make and sell such article under restrictions as to use, is “engaged in commerce,” within the meaning of the Clayton Act and of the Commerce Clause of the Constitution of which it is predicated.

2. Whether or not the restrictions as to the use of a patented article imposed upon a purchaser at the time of the purchase of such article, recognized by this Court as valid and enforceable in *Henry vs. Dick*, 224 U. S., 1, are still valid and enforceable under the later decision of this Court in *Bauer vs. O'Donnell*, 229 U. S., 1.

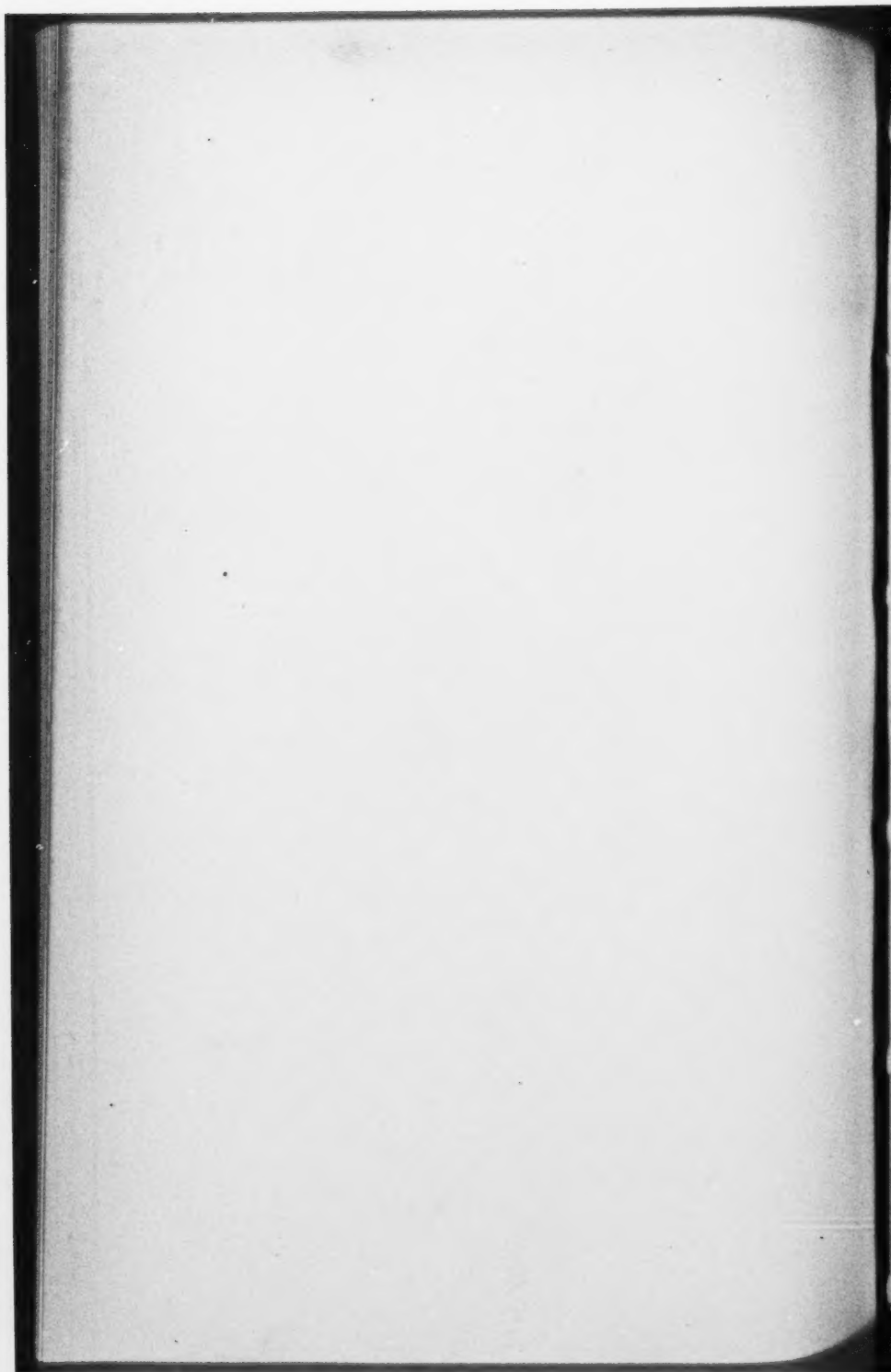
3. Whether or not notice of conditions or restrictions as to use applied to a patented article, such as present in this case, is sufficient to put a purchaser of the article upon inquiry and to charge him with notice of the facts which such inquiry would have developed, and render him guilty of infringement for a use without compliance with such conditions.

Since the case of *Straus et al. vs. Victor Talking Machine Company* (No. 374), now before this Court on certiorari, calls for an interpretation by this Court, for the first time, of the Clayton Act, and its bearing upon the rights of patents owners, and also calls for a pronouncement as to the effect of the decision in *Bauer vs. O'Donnell*, 229 U. S., 1, upon the decision in the earlier case of *Henry vs. Dick*, 224 U. S., 1, it is conceived that the Court may not be unwilling to also take and review this case, which presents much the same questions upon only a slightly different state of facts.

An authoritative determination by this Court of these very much discussed questions will render patent owners more certain and secure in their rights than at present.

MELVILLE CHURCH,  
Counsel for Petitioner.





Office Supreme Court, U. S.

FILED

OCT 18 1916

JAMES D. MAHER

CLERK

No.715

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# Supreme Court of the United States.

OCTOBER TERM, 1916.

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MOTION PICTURE PATENTS COMPANY,

*Petitioner,*

*against*

UNIVERSAL FILM MANUFACTURING COMPANY,

UNIVERSAL FILM EXCHANGE OF NEW YORK,

and PRAGUE AMUSEMENT COMPANY,

*Respondents.*

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## Brief for Respondents in Opposition to Petition for Writ of Certiorari.

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EDMUND WETMORE,

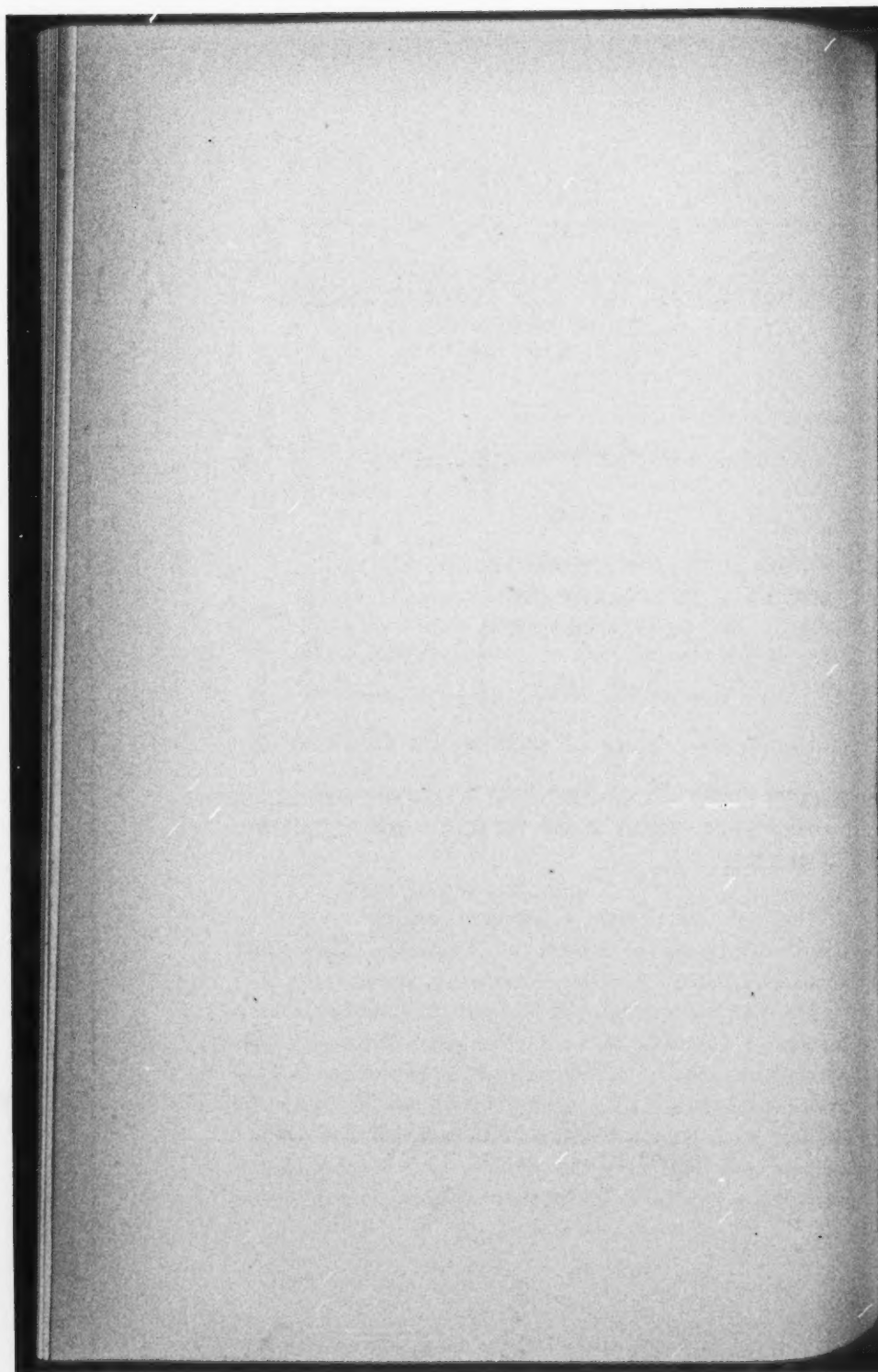
OSCAR W. JEFFERY,

*Counsel for Respondents.*

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C. G. BURGONER, 75 to 78 Spring Street, New York.



SUPREME COURT OF THE UNITED STATES,

OCTOBER TERM, 1916.

MOTION PICTURE PATENTS COMPANY,  
Petitioner,

AGAINST

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM EX-  
CHANGE OF NEW YORK, and  
PRAGUE AMUSEMENT COMPANY,  
Respondents.

**BRIEF FOR RESPONDENTS IN OPPOSITION  
TO PETITION FOR WRIT OF CERTIO-  
RARI.**

This suit was brought to restrain and recover for the alleged infringement of Letters Patent to Latham No. 707,934 for an apparatus for projecting (exhibiting) motion pictures.

The charge of infringement was that the defendant, Prague Amusement Company, used a machine which incorporated the patented apparatus in infringement of the patent, and that the other defendants joined in such infringement by furnishing the film used on the machine. The plaintiff licensed the machine to be built under the patent in suit and other patents owned by it, but it is alleged that the use complained of was

contrary to the terms of a notice of certain restrictions which notice was contained on a plate attached to the machine in question. In other words, the charge of infringement is that the defendants *jointly* violated restrictions on the use of the machine, which were caused to be placed thereon by the plaintiff, the licensor.

The facts and circumstances on which the complaint is based are set forth with conciseness and clearness in the memorandum opinion of Judge HUGH, before whom the case was tried in the District Court (Petition for Writ, pp. 11-14), and therefore will not be repeated here, but certain salient and important particulars are to be noted.

FIRST. The machine was *sold* by the Precision Machine Company, the original licensee to manufacture, and the plaintiff, the licensor, so contemplated. The license agreement between plaintiff and the Precision Company and the notice placed on the machine both refer to the "sale and purchase of this machine";

SECOND. The notice plate on the machine contained the restriction, first, that it be used *solely* for exhibiting motion pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the plaintiff.

THIRD. Patent No. 12,192 had *expired* at the time the alleged acts of infringement occurred.

FOURTH. The second part of the restriction was that the machine was to be used upon other terms *to be fixed* by the plaintiff, but *no other terms* were ever fixed and *no notice* of other terms was given to any of the defendants.

FIFTH. The machine in question, the use of which was alleged to infringe the patent, was *leased* by the defendant, Prague Amusement Company from the 72d Street Amusement Company which *purchased* it from the Precision Machine Company, and *neither the Prague*

*Amusement Company*, nor either of the other defendants, *was a party* to the license agreement between the plaintiff and the Precision Machine Company, *nor was the Prague Amusement Company's title to the machine in any way subject to the terms of the said license agreement.*

SIXTH. The Prague Amusement Company had a license to use the machine, but that license was an *implied* license and *not a contractual* license (see Opinion of Circuit Court of Appeals, Petition, p. 24, fol. 70).

In the District Court proof was taken at considerable length on the issue of the validity of the patent in suit, but neither the District Court nor the Circuit Court of Appeals considered it. The defendants denied the validity of the patent, but inasmuch as the Courts below held that the proof did not show acts of infringement, they found it unnecessary to decide the issue presented on the pleadings and proofs as to the validity of the patent.

The only questions presented by this case are those raised by the particular facts involved. No new question is presented of importance to any part of the public except the parties, which has not already been passed upon by this Court.

## I.

This case is *not* controlled by the principles to be applied in *Victor Talking Machine Company vs. Straus*, 230 Fed., 449, now before this Court for review. In that case the notice on the phonograph carefully and explicitly stated that the machine was only licensed to be *used*, and the terms of the notice made it clear that there was *no sale*. On

that account the Circuit Court of Appeals for the Second Circuit held that it came within the doctrine of *Henry vs. Dick*, 224 U. S., 1. In the present case there was, as was held by Judge HUGH and affirmed by the Circuit Court of Appeals, an absolute unqualified *sale* of the projecting machine. As was stated in the opinion of the Circuit Court of Appeals herein, referring to *Victor Talking Machine Company vs. Straus* (Petition, p. 19) :

"The present case differs from that case because here the title to the machine at once passed by the sale of the projecting machine to the 72nd Street Amusement Company."

(The defendant, Prague Amusement Company leased the machine along with its moving picture theatre from the 72nd Street Amusement Company).

There can be no doubt that this finding of fact of both the Courts below is correct; and it is not understood that the plaintiff denies that the machine here in question was *sold*.

On account of this distinction of *fact* the Circuit Court of Appeals held that this case comes within the doctrine of *Bauer vs. O'Donnell*, 229 U. S., 1, rather than that of *Henry vs. Dick*, 224 U. S., 1. In *Bauer vs. O'Donnell*, the notice was "this package is licensed by us *for sale and use* at a price not less than one dollar" and this Court said "to call the sale 'a license to use' is a mere play upon words."

In the present case the notice reads that the machine can be used only on "*terms to be fixed* by the Motion Picture Patents Company." *Non constat*, that those terms may not consist of a restriction on the *price* to be charged by the Seventy-second Street Amusement Company or the Prague Company for using the machines for exhibition purposes, or on the price to be charged by them for the machine when re-sold or leased, which would bring it directly within the holding in *Bauer vs. O'Donnell*.

There being no doubt that the projecting machine in question was actually *sold*, this case clearly involves merely an application of the principle enunciated in *Bauer vs. O'Donnell*, and that principle was correctly applied by the Circuit Court of Appeals.

There is no proof whatever in the record to sustain the statement in the Petition (p. 3, par. III.) concerning the manner in which the Petitioner has sought to derive its profits, and particularly there is no basis in the evidence for the assertion that the business of the Petitioner is the gathering of royalties from the users of machines made under its patents.

## II.

The Circuit Court of Appeals held that the doctrine of *Bauer vs. O'Donnell* was especially applicable in this case since the enactment of Section 3 of the Clayton Act, which prohibits the placing of conditions upon the sale of patented or unpatented articles which prevent the purchasers or lessees of the same from using or dealing in the supplies or commodities of the competitors of the lessor or seller, where the effect of the restriction may be to substantially lessen competition or create a monopoly. The Circuit Court of Appeals finds (Petition, p. 20), as matter of fact, that

"the testimony shows that the complainant has a monopoly under its patents of projecting machines so that if no films not manufactured by complainant can be used upon these machines, the complainant will obtain an absolute monopoly of the film business in spite of the fact that its patent on films has expired."

The plaintiff through its licenses to manufacturers and users of film is engaged in and controls commerce among the

several states. The making of the license agreements by virtue of which all motion picture projecting machines in the United States were manufactured was a participation in commerce.

The plaintiff was found by Judge DICKINSON in the Government's suit against it and others to have violated the Sherman Act by imposing unlawful monopolies and restraints upon trade by means of its license agreements (R., pp. 1107-1109). The Petitioner's position, therefore, is that although it may be *restraining* commerce (lawfully or unlawfully), it is not "*engaged*" in commerce and is therefore free to commit with impunity the acts which the statute expressly prohibits.

If the Clayton Act can be evaded by the plaintiff on the pretext that it is not engaged in commerce in the sense of the language of the Act, then any owner of a patent who desires to place restrictions on the use of a patented article may avoid the law by the subterfuge of having the patent held by a person or corporation which merely grants licenses under the patent, but does not make, sell or use the patented article.

The condition or restriction in this case clearly violates the spirit and letter of the Clayton Act, which was aimed not only at *all* restrictions of the nature of the one here involved, but also at the *plaintiff itself* and the very restriction it now seeks to enforce, as is pointed out in the opinion of the Circuit Court of Appeals (Petition, p. 20).

### III.

Irrespective of the Clayton Act the restriction that the film used on the machine be film containing the invention of Reissued Edison Patent No. 12,192, and be leased by a licensee of plaintiff (under that patent) was of no effect, because the Reissued Patent had *expired* prior to the defendants' alleged violation of the restriction, and the film (known

as the Edison film) was then open to the public to make and sell, and any attempt to further monopolize it was unlawful.

To impose as a condition of using the Latham patent that it shall only be used with films made in accordance with the Edison patent *after* the expiration of said last named patent, and sold by a licensee of the plaintiff *after* the power to grant a license thereunder had ceased to exist, is simply to *extend the term* of the Edison patent beyond the period allowed by law. It is not the same as if the Edison film had never been patented at all, because the *consideration* for granting the Edison patent and the *condition* on which it was granted was that the Edison film which was the subject of that patent, should become public property when the patent expired, and it is a most substantial invasion of that right of property if it cannot be used in a machine for which it is primarily adapted unless it is furnished by a particular class of makers or dealers, viz. : the plaintiff's licensees. It will be noted that in *Dick vs. Henry* the ink and other supplies furnished by the plaintiff in that case were none of them patented or, so far as the record showed, ever had been.

The only interest which the Motion Picture Patents Company had in the machine was that it was the owner by assignment of certain unexpired patents relating to certain features or mechanical combinations which said machine contained. It held no patents which singly or together covered the whole machine. The suit was brought for the alleged infringement of one of these patents relating to the feeding mechanism of the machine, known as the Latham patent. The act of infringement consisted in using the machine with a reel of film containing the invention of the Reissued Patent mentioned in the notice and not leased by a licensee of the Motion Picture Patents Company. This use was at an exhibition in New York, March 17, 1915; the said Reissue patent expired in August, 1914, and the invention thereby covered became public property.

*Subsequent to such expiration* the defendant, the Universal Film Manufacturing Company, *made* the film complained of and sold it to the defendant, the Universal Film Exchange, which in turn furnished it for use to the defendant, the Prague Amusement Company.

As the patent for the invention covered by the Reissued patent had expired and the invention had become public property not only before the film in controversy was *used*, but before it was even *made*, the first restriction attempting to limit the use of said film is absolutely void. The patent has ceased to exist and cannot be the subject of a license, and the attempt to license the use of said film under said patent by any person is not only without effect, but an unlawful attempt to extend the monopoly of the patent and a trespass upon the rights of the public.

#### IV.

The condition that the machine could be used "on other terms to be fixed" is void and unenforceable for several reasons, as was held by the Courts below.

(1) The notice is too indefinite to be enforced. Judge Hough says that the notice seeks to render the use of the machine "subject to any and every restriction and regulation which the patent owner may from time to time choose to make or vary" (Petition, p. 15, fol. 44).

The notice does not specify any *particular* terms. It does not state that the terms are to remain permanent when fixed. It does not limit the time when they are to be made or their nature. If it is enforceable, then the plaintiff has the right to require the possessor of the machine to pay fifty cents royalty

one day and a dollar royalty the next, and he will be compelled to inquire each day before using the machine whether those terms have been changed or not.

In *Cortelyou vs. Johnson*, 207 U. S., 196, it was held that notice of the restriction must be brought home to the defendant, and that the burden of proof in this respect rests upon the plaintiff.

"The purchaser of an article made under a patent and sold originally subject to restrictions as to place or method of use is not bound by such restrictions *unless he buys with notice of them*, as such restrictions *do not run with the goods* and are obligatory only upon those persons who take the article with knowledge of the conditions."

*Henry vs. Dick*, 224 U. S., 42.

In *Lovell-M'Connell Mfg. Co. vs. Waite Auto Supply Co.*, 198 Fed. Rep., 133, Judge BROWN held that the doctrine of acceptance of conditions of the kind here in question "requires at law specific proof that the conditions were brought to the purchaser's notice."

(2) No notice of other terms fixed by the plaintiff was ever given to the Prague Amusement Company, nor is there any evidence that any terms *ever* were fixed by the plaintiff for the use of the machine. The Petition refers to a condition in the agreement with the *Precision Machine Company* providing for a royalty or rental for the use of the machine, but, as already stated, the defendant *Prague Amusement Company* was not a party to that agreement, had no notice of it and does not hold the machine subject to its terms. It leased its machine from the 72nd Street Amusement Company, to whom it was sold by the Precision Machine Company, and thereby obtained an *implied* license to use the machine, but there was no agreement to which it was a party or privy by which it was to pay any royalty whatever.

The machine was put upon the market and offered to the public under conditions that conferred upon the buyer all the right and title which an absolute sale conveys, and an implied license was conveyed to the purchaser so far as related to the patents enumerated at the head of the plate. The only condition sought to be imposed on the purchaser was that contained on the plate. There was nothing thereon to show or to intimate that the use of the machine was subject to a continuing license fee. The statement contained on the plate and the fact that the machine was bought and paid for and possession thereof acquired from a party having the unquestioned right to that possession, estops the plaintiff from claiming that the machine is not licensed, and it cannot limit that estoppel by any terms or conditions which may be contained in the agreement with the Precision Company, of which explicit notice is not given in the conditions enumerated on the plate.

(3) The purchaser of the machine was not bound to institute an inquiry to ascertain whether terms had been fixed by the plaintiff, and, if so, what they were, but, on the contrary, if the Motion Picture Patents Co. desired to fix any "other terms" on the use of the machine, it was its duty, as above shown, to give notice of those terms in clear and definite language. The cases cited at page 28 of the Petitioner's Brief are not in point. The question involved in them was as to the application of the Statute of Limitations, and particularly as to what is necessary in order to show notice of a fraud sufficient to start the running of the Statute, which is not analogous to the present case, where the terms of a contract to be performed depend on the act of the promisee.

"Where a party contracts to do a thing, but the act on which the right to demand performance of the contract is to arise is indefinite, the defendant is en-

titled to notice before he can be called upon to perform it.

\* \* \* \* \*

"And, in general, where any option at all remains to be exercised by the plaintiff, notice of his having determined that option ought to be given."

*Chitty on Contracts*, p. 767, 16th Ed.

"When the time of performance is to be directly determined by the promisee, the law raises by implication a stipulation that notice shall be given to the promisor, and such notice must be alleged in the complaint and proven."

4 *Enc. Pl. & Pr.*, p. 653.

"Where a man promised to pay for certain weys of barley as much as he sold them for to any other man; there the plaintiff is bound to aver notice, because the person to whom the weys are to be sold is perfectly indefinite and altogether at the option of the plaintiff, who may sell them to whom he pleases."

*Vyse vs. Wakefield*, 6 Meeson & Welby, pp. 453, 454, citing *Viner's Abridgement*, "Condition."

The principle of this case has a wide application and forbids the notion that the defendants, with no other knowledge of the subject than is derived from the bare general reservation under consideration, were under any obligation whatever to seek for further information.

(4) The Petitioner's position in effect is that before the Universal Film Company or the Universal Film Exchange supplied film to the Prague Amusement Company they should have ascertained whether that Company had applied to the Petitioner for further terms on the use of the machine and had complied with those terms. On no other theory can it support its charge of a *joint* infringement, which is the *only* charge against the defendants.

The only issue determined by the Courts below in this

case was whether the particular notice on the machine of the defendant, Prague Amusement Company, is one which can be enforced in the present suit. It is not a question of "great public concern." The doctrines concerning notices of restrictions on patented articles have already been fully announced by this court, and the proposition here concerns only the particular notice which is the subject of the present case. The Circuit Court of Appeals in *Victor Talking Machine Co. vs. Straus*, said that the transaction in that case was "not a sale outright or a *conditional or restricted sale* or any sale at all" (italics ours). In the case at bar, the transaction was an *absolute unqualified sale*, and for that reason alone the two cases rest on entirely different principles.

The respondents, therefore, submit that the Petition for a Writ of Certiorari, should be denied.

EDMUND WETMORE,  
OSCAR W. JEFFERY,  
Counsel for Respondents.

Office Supreme Court, U. S.

FILED

NOV 15 1916

JAMES D. MAHER

CLERK

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IN THE  
**Supreme Court of the United States**

OCTOBER TERM, 1916.

—  
No. 715.  
—

IN EQUITY.

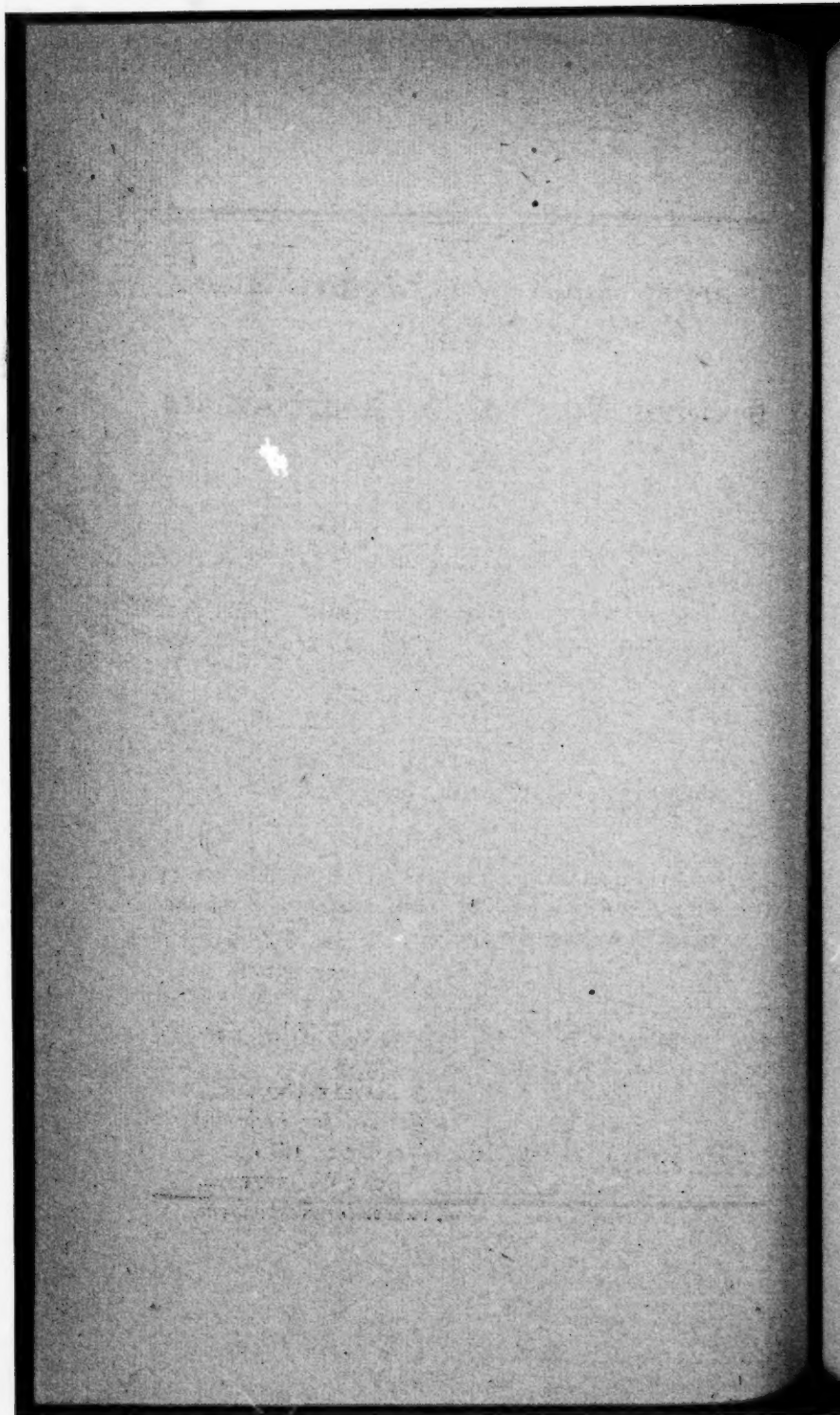
Motion to Advance and Affidavit in Support Thereof.

MOTION PICTURE PATENTS COMPANY, *Petitioner*,

*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL  
FILM EXCHANGE OF NEW YORK, AND PRAGUE AMUSE-  
MENT COMPANY, *Respondents*.

—  
MELVILLE CHURCH,  
*Counsel for Petitioner.*



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MENT COMPANY, *Respondents.*

---

NOTICE.

EDMUND WETMORE, Esq., and  
OSCAR W. JEFFERY, Esq.,  
34 Pine Street, New York, N. Y.

GENTLEMEN:

Take notice, that on Thursday, the 16th day of November, 1916, at the opening of the Court or as soon thereafter as counsel may be heard, I shall present the accompanying motion to advance the hearing of this cause. A copy of such motion and the affidavit of George F. Scull, Esq., in support of the same, is herewith served you.

MELVILLE CHURCH,  
*Counsel for Petitioner.*

Copy received this 14th day of November, 1916.

OSCAR W. JEFFERY,  
*Counsel for Respondents.*

IN THE SUPREME COURT OF THE UNITED  
STATES.

OCTOBER TERM, 1916.

---

No. 715.

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IN EQUITY.

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MOTION PICTURE PATENTS COMPANY, *Petitioner,*  
*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL  
FILM EXCHANGE OF NEW-YORK, AND PRAGUE AMUSE-  
MENT COMPANY, *Respondents.*

---

MOTION.

And now comes Motion Picture Patents Company, pe-  
titioner, by Melville Church, its counsel, and moves that the  
hearing of this cause be advanced, and, specifically, that the  
cause be advanced to be heard in connection with the cause  
of Victor Talking Machine Company vs. Straus, No. 374,  
now set for argument on December 4, 1916.

MELVILLE CHURCH,  
*Counsel for Petitioner.*

IN THE SUPREME COURT OF THE UNITED  
STATES.

OCTOBER TERM, 1916.

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No. 715.

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IN EQUITY.

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MOTION PICTURE PATENTS COMPANY, *Petitioner,*

*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL  
FILM EXCHANGE OF NEW YORK, AND PRAGUE AMUSE-  
MENT COMPANY, *Respondents.*

---

AFFIDAVIT.

County of New York, State of New York, ss.

GEORGE F. SCULL, being duly sworn, deposes and says as follows:

I. That he is the Vice-President of Motion Picture Patents Company, the petitioner herein.

II. That this cause is now in this Court on Writ of Certiorari issued herein on the 1st day of November, 1916, the return to said Writ having been filed on the 13th day of November, 1916.

III. That the cause involves important questions of gen-

eral interest in regard to the right of a patentee to impose conditions of use on the sale of a patented article.

IV. That the cause of Victor Talking Machine Company vs. Straus, No. 374, is also now in this Court, on Certiorari, and has been assigned for argument, as deponent is informed and believes, on December 4, 1916.

V. That it seems desirable that both these causes should be heard at the same time.

VI. That the Latham patent No. 707,934, dated August 26, 1902, involved in this cause, has less than three years to run, and will nearly have expired before this cause is reached in regular order on the docket.

VII. That the accompanying motion to advance the hearing of this cause is not made for purposes of delay, nor for any other ulterior purpose.

GEORGE F. SCULL.

Subscribed and sworn to before me this 14th day of November, 1916.

GEORGE E. BROWN,  
*Notary Public*

(Seal.)

Notary Public, Richmond County.  
Certificate Filed in N. Y. Co., No. 179.  
New York Register No. 7223.  
Term Expires March 30, 1917.

Office Supreme Court, U. S.

FILED

NOV 16 1916

JAMES D. MAHER  
CLERK

IN THE  
SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1916,

No. 715.

MOTION PICTURE PATENTS COMPANY,  
Petitioner,

VS.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM EX-  
CHANGE OF NEW YORK, and PRAGUE  
AMUSEMENT COMPANY,  
Respondents.

In Equity.

**Affidavit in Opposition to Motion to Advance  
Cause for Argument.**

STATE OF NEW YORK, }  
County of New York, } ss.

OSCAR W. JEFFERY, being duly sworn, says :

I. I am one of the counsel for the Respondents in the above entitled cause. The bill of complaint in this suit alleged, as the only cause of action, the joint infringement by defendants of Letters Patent to Latham, No. 707,934, but, as appears by the Record, the machine, the use of which was claimed to infringe the patent, was manufactured by the Precision Machine Company, not a party to this suit, under a

license from the plaintiff, the Motion Picture Patents Company, and its use was claimed to be an infringement only on the ground that said use was in violation of a notice of restrictions placed upon the said machine; in other words, the suit is, in reality, one to enforce the said restrictions, although the question of the validity of the said patent must be determined before a decree can be rendered for the Petitioner.

II. The question in *Victor Talking Machine Company vs. Straus*, No. 374, which cause has been assigned for argument in this Court on December 4, 1916, is whether certain restrictions on the use of a machine *not sold* but the *use of* which was licensed under a patent are enforceable, while in the present cause the question is whether certain other and different restrictions on a machine which *was sold* can be enforced.

III. Some of the other questions which are raised by the Petitioner's appeal in the case at bar are as follows :

(1) Whether a restriction confining the use of the patented machine when sold to film made by authority of a license under a patent which at the time of the alleged infringement had expired, is enforceable.

(2) Whether a restriction that the machine can only be used upon compliance with "other terms to be fixed" by the owner of the patent, which terms were never fixed, is enforceable, and whether said restriction required the purchaser of the machine to inquire from the owner of the patent what those "other terms" were.

(3) Whether the restriction involved in this cause violates Section 3 of the so-called Clayton Act and whether the plaintiff is "engaged in commerce" within the meaning of that Act. ?

(4) Whether the plaintiff has proved a joint infringement as alleged in the bill of complaint.

IV. None of the above enumerated questions are involved in Victor Talking Machine Company vs. Straus, and that they will be presented to the Court in this cause by the petitioner appears from its petition for writ of *certiorari* and brief in support thereof, and from the opinions of the Courts below.

V. In addition to the questions above enumerated, the question of the validity of the Latham patent in suit is to be determined. Out of 1491 pages of pleadings, testimony and exhibits in the Record, all but about fifty are devoted to that question.

VI. In the suit brought by the United States against the Motion Picture Patents Company, the petitioner herein, and others, over two years prior to the filing of the bill in the present case, for violation of the so-called Sherman Act, it was held (before the trial of the case at bar) by the United States District Court for the Eastern District of Pennsylvania (Rec., pp. 1089, 1108), that the license agreements between the petitioner, the Motion Picture Patents Company, and the manufacturers of projecting machines, pursuant to one of which agreements the notice of restrictions hereinabove referred to was placed upon the alleged infringing machine, were and are unlawful and void, and a decree was entered, among other things, to that effect from which decree an appeal was taken to this Court and is now pending here. Therefore, if this Court should hold that the restrictions on the use of the alleged infringing machine are valid and enforceable, the plaintiff will be able to enforce an agreement which the said United States District Court for the Eastern District of Pennsylvania has decreed to be unlawful, and which this Court may hereafter hold to be unlawful, and it is therefore submitted, on behalf of the respondents, that this cause should not be advanced for argument, if at all, until the said appeal in the said suit of the United States against the petitioner has been heard and determined by this Court.

VII. If this cause is set down for argument on December

4th, it will be impossible for the petitioner, or the respondents, to submit briefs within the time required by the rules of this Court, and there will not be sufficient time to properly prepare the briefs of the respondents.

VIII. Only two days notice of the motion to advance this cause upon the calendar was given to Counsel for the respondents and therefore this affidavit and the grounds of opposition to the motion have of necessity been prepared in great haste and cannot be as fully stated as they could be if longer notice had been given.

IX. Respondent's Counsel have not yet received a copy of the transcript of the record in this Court.

X. It is respectfully submitted that the petitioner has shown no good cause for advancing the cause upon the calendar and that on account of the number and diversity in character of the questions involved and the importance of the case to the respondents, they should not be prejudiced in the preparation of their case for argument by the suspension of the rules which the Petitioner's motion in effect asks for.

The motion is not opposed for purposes of delay, but to preserve the substantial rights of the respondents.

OSCAR W. JEFFERY.

Subscribed and sworn to before me this 15th day of }  
November, 1916. }

GRACE A. TAYLOR,  
Notary Public,  
New York County No. 16.  
New York Register No. 8001.

Office Supreme Court, U. S.

FILED

DEC 18 1916

JAMES D. MAHER

CLERK

# Supreme Court of the United States

No. 715.

MOTION PICTURE PATENTS COMPANY, *Petitioner,*

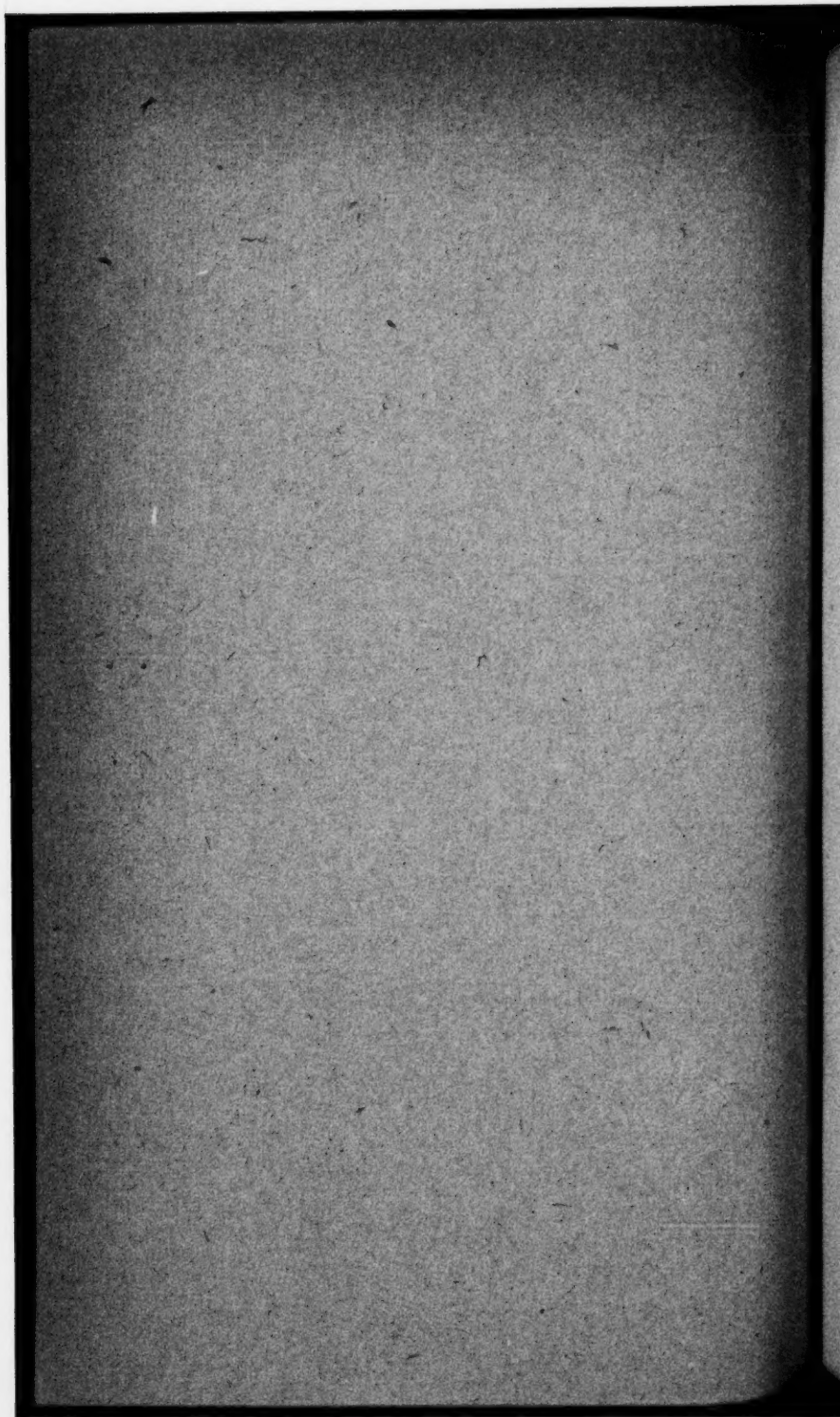
*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL  
FILM EXCHANGE OF NEW YORK, and PRAGUE  
AMUSEMENT COMPANY, *Respondents.*

ON CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR  
THE SECOND CIRCUIT.

BRIEF FOR PETITIONER.

MELVILLE CHURCH,  
*Counsel for Petitioner.*



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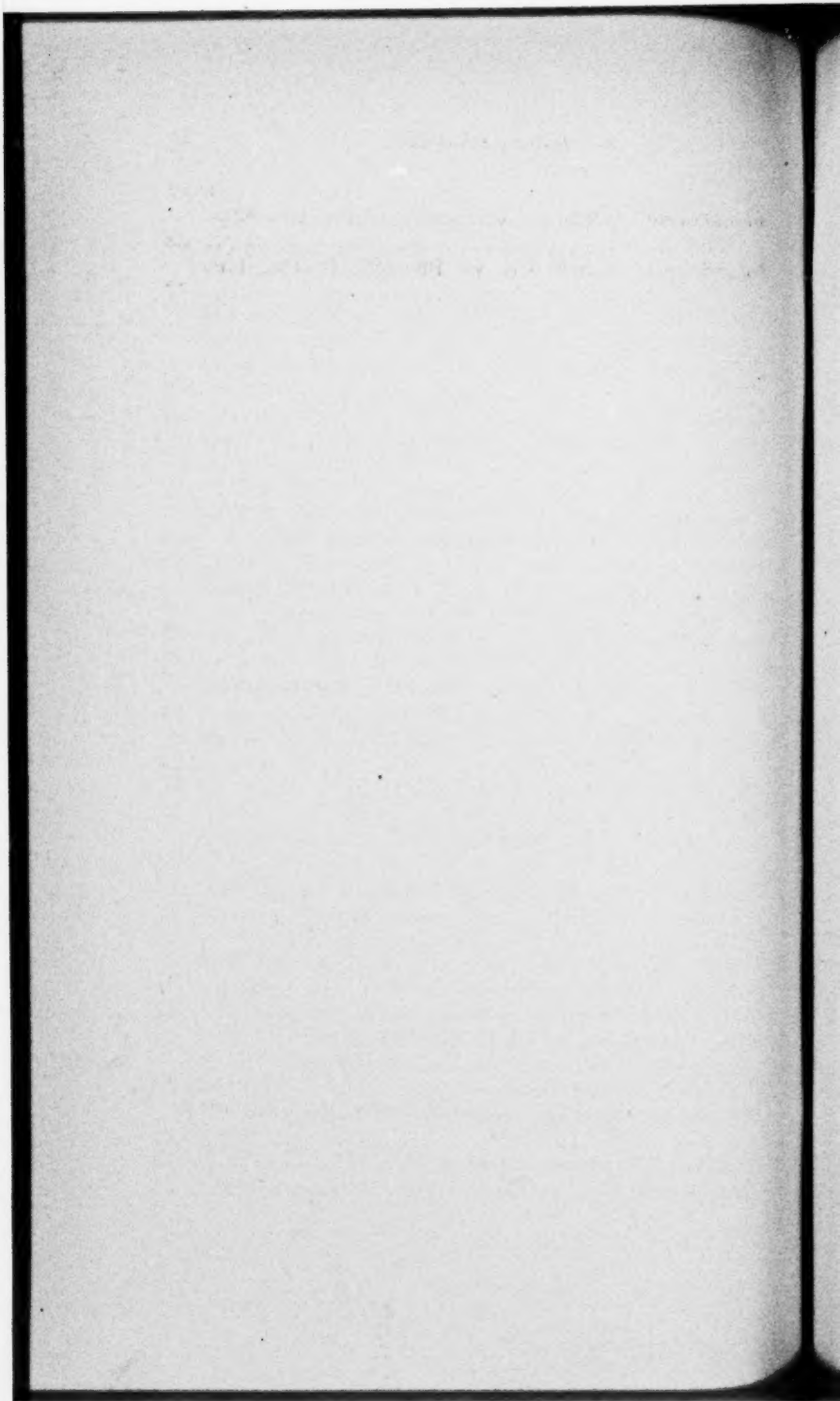
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# Supreme Court of the United States

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No. 715.

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MOTION PICTURE PATENTS COMPANY, *Petitioner,*

*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY, UNIVERSAL  
FILM EXCHANGE OF NEW YORK, and PRAGUE  
AMUSEMENT COMPANY, *Respondents.*

---

ON CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR  
THE SECOND CIRCUIT.

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BRIEF FOR PETITIONER.

---

STATEMENT OF THE CASE.

This case is here on certiorari to review a decree of the Circuit Court of Appeals for the Second Circuit, affirming a final decree of the District Court for the Southern District of New York, dismissing the bill of complaint, in a

suit brought by Motion Picture Patents Company, plaintiff-petitioner, against Universal Film Manufacturing Company, Universal Film Exchange of New York, and Prague Amusement Company, defendants-respondents, for infringement of Letters Patent No. 707,934, granted to Woodville Latham, August 26, 1902 (upon an application filed June 1, 1896), for improvements in projecting kinetoscopes, or what have come to be known as motion picture projecting machines.

The bill of complaint sets forth the grant of the patent in suit and plaintiff's ownership thereof and charges the defendants with joint infringement.

The answer sets up, *inter alia*, as affirmative defenses, (1) anticipation of the patent in suit by certain prior patents and (2) by certain instances of alleged prior knowledge and use; (3) an alleged estoppel growing out of a Patent Office proceeding to which the defendants were not parties nor privies; (4) a license under the patent in suit; and (5), non-infringement.

The District Court, passing over the other defenses, held that the defendants had established their defense of license, and directed the entry of a decree dismissing the bill (p. 698). From this decree the plaintiff appealed to the Court of Appeals for the Second Circuit, and that court affirmed the decree of the court below (p. 1494). A petition for rehearing was denied (p. 1510).

#### IMPORTANT QUESTIONS INVOLVED.

Several questions of overshadowing importance are involved in the case, viz:

(1) The right of a patent-owner to prescribe restrictions as to use on the sale of a patented article by a licensee under the patent.

(2) The obligation of a purchaser from a licensee of the

patent-owner to inquire as to the restrictions, if any, under which his vendor sells the patented article.

(3) The sufficiency of a notice of restrictions as to use conveyed by a name plate applied to a patented article sold by a licensee of the patent-owner, and the binding effect of such notice and restrictions on the purchaser of such patented article.

(4) The bearing, if any, of the Clayton Act (38 Stat., 730-731) on the transaction involved in the instant case.

#### PETITIONER'S POLICY IN DEALING WITH ITS PATENT.

The Latham patent in suit covers means for feeding a quantity of motion picture film of considerable weight and of great length, through a motion picture projecting machine, with a regular, uniform and accurate movement and so as not to expose the film to excessive strain and wear and tear.

The method adopted by the petitioner to extend the use of its patented invention as rapidly and as widespread as possible and to derive revenue from those who profited by that use, and concurrently with such use, consisted—

- (a) in authorizing or licensing certain manufacturers to *make* the patented machines on payment to the petitioner of a small royalty amounting to five dollars (\$5) per machine;
- (b) in authorizing the licensee-manufacturers to *sell* such machines, at not less than one hundred and fifty dollars (\$150) per machine;
- (c) in authorizing the licensee-manufacturers to sell such machines only with the express restriction that such machines should not be *used* except (1) in connection with certain designated film and (2) upon terms to be fixed by petitioner as to payment of a royalty while the machine was in use; and
- (d) in requiring that the licensee-manufacturer should apply to each machine sold by him a name plate containing the notice of the re-

strictions under which only the machine could be lawfully used.

#### THE SPECIFIC FACTS OF THE CASE.

The material facts in the present case are as follows:

(a) The petitioner, Motion Picture Patents Company, as the owner of the patent in suit (No. 707,934), on June 12, 1912, granted to the Precision Machine Company (p. 1974) the right and license

(p. 1977)

"to manufacture and sell motion picture exhibiting or projecting machines embodying one or more of the inventions described and claimed in the said United States Letters Patent Nos. \* \* \* 707,934 \* \* \*"

coupled with the restriction that each machine put out by the licensee should be sold only

(p. 1080)

"under the restriction and condition that such exhibiting or projecting machines shall be used (1) solely for exhibiting or projecting motion pictures containing the invention of reissued Letters Patent No. 12,192, leased by a licensee of the licensor while it owns said patents, and (2) upon other terms to be fixed by the licensor and complied with by the user while the said machine is in use and while the licensor owns said patents (which other terms shall only be the payment of a royalty or rental to the licensor while in use)."

(b) The license also provided that:

(p. 1081)

"The licensee further covenants and agrees that the licensee will attach in a conspicuous place to each and

every such exhibiting or projecting machine of the licensee's manufacture sold by the licensee, except for export, after the date hereof, a plate showing plainly not only the dates of the letters patent under which the said machine is licensed, but also the following words and figures:

'SERIAL NO.  
PATENTED

NO.

The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of reissued patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine.' "

(c) The license further provided that the licensee-manufacturer should pay the licensor—

(p. 1079)

"On each such machine capable of exhibiting or projecting by transmitted light, motion pictures on film of a width greater than approximately one inch (1 in.), a royalty of five dollars (\$5.00)."

(d) The machine (Defendant's Exhibit No. 3, Simplex Machine) whose use is charged by the petitioner to be an infringement of the patent in suit, was made by the Precision Machine Company under its license and bears a plate upon which is plainly inscribed a notice from petitioner of the restrictions under which, only, the machine might be lawfully used, the exact wording of the plate being, in full, as follows (Defendants' Exhibit No. 1):

(p. 1073)

"Mfr's  
Serial No.  
3557

Simplex

Special  
License No.  
3666

Made by

THE PRECISION MACHINE COMPANY

Patented

No. 576,185	March 2, 1897
No. 580,749	April 13, 1897
No. 586,953	July 20, 1897
No. 673,320	April 30, 1901
No. 673,992	May 14, 1901
No. 707,934	August 26, 1902
No. 722,382	March 10, 1903

The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use, and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine.

Motion Picture Patents Company, New York, N. Y.,  
U. S. A."

(e) The machine referred to was delivered by the Precision Machine Company to the 72nd Street Amusement Company, operating the 72nd Street Playhouse, New York City, and, when so delivered, bore petitioner's name plate and notice above set out (p. 63).

(f) The respondent, Prague Amusement Company, on Nov. 2, 1914, leased from the 72nd Street Amusement Company, the 72nd Street Playhouse, and among the equipment

on the premises and included in the lease was the machine in question, which, at that time, also bore the name plate and notice (Stipulation, p. 63).

(g) The respondent, Prague Amusement Company, being itself a mere lessee of the premises in which the machine was and is used, claims no property right in the machine itself.

(h) On Jan. 18, 1915, petitioner notified the respondent, Universal Film Exchange of New York, that a picture projecting machine embodying the invention of the patent in suit was being used, without license, at the 72nd Street Playhouse, New York City, and that the Universal Film Exchange of New York was aiding and contributing to such unauthorized use by supplying motion picture films for co-operation with such machine (Plaintiff's Exhibit H, p. 746). Receipt of this notice is admitted (p. 59).

(i) On March 3, 1915, the petitioner also notified the respondent, Universal Film Manufacturing Company of the use, without license, of the projecting machine embodying the invention of the patent in suit at the 72nd Street Playhouse, and that it was aiding and contributing to such unlicensed use by furnishing motion picture films to the Universal Film Exchange of New York, to be supplied by the latter for use, without license, on that machine (Plaintiff's Exhibit I, p. 748). Receipt of this notice is also admitted (p. 59).

(j) On January 18, 1915, the petitioner also notified the 72nd Street Amusement Company and Mr. L. Bolognino, who is President of the respondent Prague Amusement Company, at 350 East 72nd Street, New York City, of the

use, without license, at the premises No. 350 East 72nd Street, New York City, of the projecting machine embodying the invention of the patent in suit (Plaintiff's Exhibit G, p. 745).

This notice was served by registered mail and receipt given for same by an agent of L. Bolognino (Plaintiff's Exhibit K, p. 753).

(k) It is established that L. Bolognino is the President of the respondent, Prague Amusement Company (Bolognino, X-Q. 2, p. 64) which does business at the 72nd Street Playhouse, located at 350 East 72nd Street, New York City (Stipulation, par. 3, p. 735).

(l) It is admitted by respondents that, subsequent to March 4, 1915, and prior to March 17, 1915, the respondent, Universal Film Manufacturing Company, sold to respondent, Universal Film Exchange of New York, a certain motion picture film entitled "The Five Pound Note," and a certain other motion picture film entitled "Refugees," and that these films were supplied by the respondent, Universal Film Exchange of New York, on March 17, 1915, to the respondent, Prague Amusement Company, *for use on Simplex machine mentioned and were used on that machine* by the Prague Amusement Company on the last mentioned date by feeding the film through the machine and projecting the photographs thereon on a screen. (Stipulation, p. 736; also, Stipulation, p. 65.)

(m) Whether or not the 72nd Street Amusement Company paid any special consideration to the Precision Machine Company when it obtained from the latter the projecting machine in question does not affirmatively appear, but inasmuch as the Precision Machine Company was ob-

ligated, under its license agreement with petitioner, not to part with any machine for less than \$150, it may fairly be assumed that that amount was paid in this particular instance.

THE LIABILITY OF THE RESPONDENT, PRAGUE AMUSEMENT COMPANY, DETERMINES THAT OF THE OTHER RESPONDENTS.

The liability of the respondents, Universal Film Manufacturing Company and Universal Film Exchange of New York, is dependent upon the liability of the respondent, Prague Amusement Company, because the first named companies are only sued as contributors to the act of infringement alleged to have been committed by the Prague Company. The liability of the Prague Company will, therefore, first be discussed.

THE LIABILITY OF THE RESPONDENT, PRAGUE AMUSEMENT COMPANY.

It is petitioner's contention that the restrictions as to the right to use the machine in the possession of the Prague Amusement Company, imposed by the petitioner, were and are lawful and enforceable, and that they were fully brought home to the Prague Company, so as to make them binding on the latter.

This court, in the Dick case (Henry v. Dick, 224 U. S., 1), affirmed the law to be that a patent-owner might, on the sale of a specimen of the patented invention, impose lawful restrictions as to time, place, method or conditions of its use, so as to render an unauthorized use an infringement.

We find nothing in the Sanotogen case (Bauer v. O'Donnell, 229 U. S., 1) qualifying this holding.

The point that was presented for decision in the latter

case was thus expressed by Mr. Justice Day, in delivering the opinion of the Court:

(p. 16)

"The real question is whether in the exclusive right secured by statute to 'vend' a patented article there is included the right, by notice, to dictate the price at which subsequent sales of the article may be made."

It will thus be seen that the patentee's right to impose restrictions or qualifications as to *use* was not there involved.

In the Dick case, however, as in the case at bar, the right of "use" was alone involved, and there, as here, the patent-owner did not derive his entire revenue from the sale of the patented thing, but by far the greater portion of it from the subsequent *use* of it.

THERE ARE TWO RESTRICTIONS AS TO USE IMPOSED BY THE PATENT-OWNER IN THIS CASE, EITHER OF WHICH, IF VALID, FIXES THE LIABILITY OF RESPONDENTS.

The petitioner in this case never gave the licensee-manufacturer a right to sell a single machine embodying the patented invention, without restriction as to its use. On the contrary, two separate and distinct restrictions were imposed, namely:

*License Restriction No. 1:*

That the machine should be used only with motion pictures leased from a manufacturer licensed by petitioner.

*License Restriction No. 2:*

That the machine could not be used at all without compliance with terms previously fixed by the petitioner.

Either of these restrictions, if valid and brought home to the respondent, Prague Amusement Company, would fix the

liability of the latter as an infringer, unless it could show compliance therewith.

License Restriction No. 1 is claimed by the respondents to be repugnant to the Clayton Act, so, for the present, that will be passed, and License Restriction No. 2, which is not even contended to fall within the Clayton Act, will be first considered.

#### THE DUTY AND RESPONSIBILITY LAID UPON ONE WHO PURCHASES AND USES AN ARTICLE COVERED BY A PATENT.

When one purchases, in open market, an article covered by a patent, it is his duty, whether he perform it or not, to inquire if its sale is authorized and, if authorized, under what restrictions, if any, it may be used. While he may have a remedy over against his vendor, upon an implied warranty, if he uses the thing purchased without authority of the patent-owner, he does so at his own risk.

So, likewise, one who uses a thing marked "Patented," purchased from another than the patent-owner, is bound to inquire as to the existence of conditions qualifying his right to such use; especially if the thing purchased shows, on its face, that it was made and sold by a mere licensee under the patent.

Here, the Simplex machine in question, when it left the hands of the Precision Machine Company, bore, on its face, evidence that it was put out by a mere licensee of the patent owner. The name plate then and now upon it shows (1) that it was "Made by the Precision Machine Company"; (2) that it was covered by the patent in suit, i.e., "No. 707,934, dated August 26, 1902"; (3) that it was made under "Special License No. 3666"; (4) that the petitioner, Motion Picture Patents Company was the owner

of the patent; (5) that it could not be used at all save upon terms first fixed by petitioner and complied with while it was in use.

All of these announcements on the name plate plainly indicated to the original purchaser of the machine and to each and every user thereof, thereafter, including respondent, the Prague Company, that the Precision Machine Company was only a licensee of petitioner and called upon such purchaser and user to inquire of the Precision Machine Company, the terms of the license under which the machine was put out, or to inquire of the petitioner, as the named owner of the patent, the terms and conditions under which the machine could be lawfully used. If inquiry had been made of the Precision Machine Company, it would have been found that its license-agreement prohibited it from selling machines except for use

“upon other terms to be fixed by the licensor and complied with by the user while said machine is in use and while the licensor owns said patents (*which other terms shall only be the payment of a royalty or rental to the licensor while in use*)”

and, if inquiry had been made of the petitioner, Motion Picture Patents Company, the owner of the patent, the same information would have been elicited.

The duty of the user to make inquiry, when thus put upon notice, and the result of neglecting and failing to do so, need not be argued in this court.

“Whatever is notice enough to excite attention and put the party on his guard and call for inquiry is notice of everything to which such inquiry might have led. When a person has sufficient information to lead him to a fact, he shall be deemed conversant of it.”

Wood v. Carpenter, 101 U. S., 135-141.

Shauer v. Alterton, 151 U. S., 607-622.

License Restriction No. 2, being, then, a valid restriction respecting the right of *use*, within the principles of the Dick case, and not an invalid restriction as to "vending" condemned in the Sanotogen case, and notice of such valid restriction having been brought home to the respondent, Prague Amusement Company, the use by the latter, despite and in disregard of such restriction without making terms with petitioner *and without the payment of the royalty* which petitioner relied upon for its revenue, was an infringing use, which the courts below should have restrained and which this court, we submit, ought now to restrain.

#### LICENSE RESTRICTION No. 1.

The terms of License Restriction No. 1, giving the purchaser of the patented machine

"the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents"

is, in effect, but a setting forth of a short description of the kind of film that may be used in the patented projecting machine authorized by the patent-owner to be made and sold, (the date, term and ownership of the reissued patent being immaterial) and a designation of the manufacturers (licensees of the petitioner) who may furnish such film to the user.

Such a restriction as to use, embodied in the license-agreement of June 12, 1912, would be lawful within the principles laid down by this court in the Dick case, decided March 11, 1912; but whether such a restriction, valid at the time it was made, was and is rendered unlawful and unenforceable by the passage of the Clayton Act, on October 15, 1914, is for this court to decide.

It is contended by petitioner that this case is not within the terms or purview of the Clayton Act. That Act (Sec. 3) is only applicable to the case of

"persons (or corporations) engaged in commerce,"  
who,

"in the course of such commerce" \* \* \*

"lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities,"

"on the condition, agreement or understanding that the lessee or purchaser thereof shall not deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor of the lessor or seller."

(a) The petitioner, Motion Picture Patents Company, is not engaged in commerce, and has not leased or sold any commodity, nor made any contract for the sale of any commodity. It is a mere patents-holding concern. It has no factory, nor selling force. It makes and sells no commodity.

Having made no commodity, sold no commodity, nor made any contract for the sale of any commodity, and having no commodity to sell, it is not seen how it can be properly charged with having made with its lessees or purchasers (of which there are none), of any of its commodities (there being none such), on the condition, agreement or understanding that such lessee or purchaser shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of any of its competitors (of which there are none).

The petitioner has, therefore, it is respectfully submitted, done nothing declared by the Clayton Act to be unlawful.

(b) Nor has the Precision Machine Company violated the Act. It is true it is a manufacturer and seller of projecting machines, but it makes and sells nothing else. There is no evidence that it has ever made or contemplated making, or that it has ever sold or contemplated selling, motion picture films. Nor is there any evidence that any other concern that manufactures or sells projecting machines also manufactures or sells motion picture films. The restriction in its contract of sale with the purchaser of the projecting machine, in question, had only to do with the use of motion picture films. As the Precision Machine Company has no competitors who make and sell films, and is not in the film business itself, the restriction as to films is not unlawful, within the Act.

It is respectfully submitted that the legality of the Act can only be supported on the theory that it is a regulation of commerce, aimed at those engaged in commerce, who unfairly compete in such commerce. One must be engaged in commerce, must have competitors engaged in the same commerce, and must unfairly compete with such competitors to be within the Act.

The Circuit Court of Appeals for the Second Circuit, in its opinion in this case, confounds the petitioner, Motion Picture Patents Company, with the General Film Company (p. 1495), which is a manufacturer and dealer in motion picture films, and assumes (doubtless unwittingly) the identity of the two corporations, whereas, they are, in fact, quite distinct and separate.

SHOULD LICENSE RESTRICTION NO. 1 BE HELD UNLAWFUL, IT WOULD NOT AFFECT THE LAWFUL RESTRICTION NO. 2. THEY ARE SEVERABLE.

Whether License Restriction No. 1 is decreed to be lawful or unlawful, it can not, it is respectfully submitted,

affect the lawfulness of License Restriction No. 2, which the respondent, Prague Company, has admittedly violated and under which it is liable, if notice has been properly brought home to it.

Oregon R. & U. Co. v. Windsor, 20 Wall., 64-72;  
U. S., etc., Co. v. Griffen, 126 Fed., 364-370.

It has not been and can not be contended that the presence of License Restriction No. 1 in the license-agreement with The Precision Machine Company had the effect of rendering the whole license null and void. The two restrictions are independent and severable. If one is "unlawful," under the Clayton Act, and the other is lawful, the latter will support the license-agreement. Petitioner relied upon the payment of a continuing royalty while the machine was in use as its main source of revenue. The \$5 received from the licensee-manufacturer was but a paltry 3 1-3 per cent of the selling price, and utterly inadequate. This Court has upheld a license restriction based upon a continuing royalty for use. *St. Paul Plow Works v. Sparling*, 140 U. S., 184.

Upon the License Restriction No. 2, alone, petitioner can, therefore, afford to rely.

Whether the name-plate notice was sufficient in itself to require the licensee-user to make inquiry of the petitioner as to the "other terms" upon compliance with which the machine could only be lawfully used, or to make inquiry of the selling concern (*i. e.*, The Precision Machine Company) that, on the face of the notice, was but itself a licensee-manufacturer—either line of inquiry, properly followed up, as the law required, would have developed the details of such other terms and shown them to relate only to the fixing of a royalty for use, to be paid only during use—a most reasonable arrangement.

If respondent, Prague Amusement Company, shall, in this Court, contend that the presence of License Restriction No. 1 in the license granted to The Precision Machine Company renders such license wholly void, and this Court shall so rule, respondent will take nothing by it, for it will leave it as a naked infringer, undertaking to use a machine not procured from the owner of the patent, but from a manufacturer that had no license to make or to sell or to use it.

And, if the license, with its License Restriction No. 2, is good and enforceable, the respondent, Prague Amusement Company, because of its failure to arrange with petitioner for terms of royalty for use, has never had a license to use and was and is, therefore, an infringer while using.

#### SOME GENERAL OBSERVATIONS AND THEIR APPLICATION TO THE INSTANT CASE.

In view of the importance of the questions involved in this case and the breadth of discussion that may ensue, the following observations are, with some diffidence, respectfully submitted:

I. Confusion is liable to result from a failure to observe the distinction between the nature of the property rights conferred by a patent and the property rights in a machine made under the patent.

II. The rights conferred by a patent, *i. e.*, the exclusive right to make, the exclusive right to sell, and the exclusive right to use, constitute an example of incorporeal personal property; while a machine embodying a patented invention is an example of corporeal personal property.

This Court in *De La Vergne Machine Co. v. Featherstone*, 147 U. S., 209-222, has declared:

"The privileges granted by letters patent are plainly an instance of an incorporeal kind of personal property, which as personalty, in the absence of context to the contrary, would go to the executor or administrator in trust for the next of kin."

III. The incorporeal rights conferred by a patent are imponderable, and can neither be seen, handled, levied upon under execution, nor replevied; while a machine embodying a patented invention is subject to all of these incidents.

IV. Patent rights, unlike physical machines made under a patent, are susceptible of infinite subdivision, without impairment.

The Statute (Sec. 4898, R. S. U. S.) provides that a patentee may

"grant and convey an exclusive right under his patent to the whole or any specified part of the United States."

Under this statute the patent privileges may be divided into any number of individual parts, each co-extensive with the whole country, or into grants covering any number of specific parts of the country.

V. In addition to assignments and grants for which the statute specifically provides, the separate substantive exclusive privileges of making, using and selling conferred by a patent, may be parcelled out by licenses. To one may be given a license to make, use and sell at a specified place only; to another, to make and use, but not to sell; to another, to make and use at a specified place only, but not to sell; to another, to make and use at a specified place for a specific purpose only; to another, to use only, but not to make nor to sell; to another, to use, at a specified place, only, but not

to make nor to sell; to another, to use for a specified purpose only, but not to make nor to sell; to another, to make or to use, or to sell, for a limited or specified time only; to another to make and to sell a specified number of machines only; to another to make, to use or to sell, only upon compliance with certain conditions precedent, and so on, *ad infinitum*.

VI. Any of the above enumerated licenses may be granted upon the payment to the patent owner of a lump sum down, or upon the agreement or understanding that a royalty shall be paid by the licensee of so much a year, or of so much a machine, or the like.

VII. Under present law, a patent-owner is not required to make, use or sell any specimens of the patented invention; nor can he be compelled to license others to do so. (Paper Bag Patent Case, 210 U. S., 405-425-429.)

VIII. On the authorized sale of a patented machine there is involved the transfer of the property in the corporeal physical machine itself, and so much, and only so much, of the incorporeal rights conferred by the patent as the patent-owner chooses to relinquish.

If the machine is sold outright, for a lump sum, without restriction, both the patent-owner's corporeal and incorporeal rights pertaining to that machine pass to the purchaser, absolutely, and the machine is ever thereafter freed of the dominion of the patent-owner and of the patent. If, however, at the time of the sale, the patent-owner restricts the purchaser's enjoyment of the incorporeal right of use conferred by the patent as to time, place, method or otherwise, a use by the purchaser other than such as is thus specifically authorized, becomes an infringing use, because an infraction of the patent-owner's reserved rights, and may be restrained by the courts, in proper cases.

The possibility of the ownership of the corporeal rights of property in a physical machine, by one person, and of the ownership of the incorporeal rights of property in a patent covering that machine, by another person, is aptly demonstrated by the following examples:

(a) If a person innocently purchases, in open market, a machine that was, without his knowledge, made in infringement of an outstanding patent he may, unless and until interfered with by the patentee, use, mortgage, lease, or sell such machine. The machine in his hands may also be seized and sold on execution and if he is unlawfully dispossessed of it he may recapture it by an action of replevin.

If the incorporeal rights of the owner of the outstanding patent are never enforced, the holder of the machine may do with it all that he might do with any unpatented machine. His dominion over it will be complete.

But the patent-owner can not be defeated of his rights respecting that machine. By proper proceedings, he may restrain the owner of the machine from the further use of it and make him pay damages and profits for its past use. Even after he is thus enjoined from the use of the machine, the property in the machine remains in the holder thereof, and while he may no longer use the machine, as such, he may, if he pleases, break it up and sell the resulting materials, as junk, and pocket the proceeds.

(b) Again, if a patent-owner sells a machine with the license restriction that it may be used only at a specified place, and that machine, while in the licensee's hands, is seized and sold on execution, the purchaser from the sheriff, while obtaining a perfectly good title

to the physical machine itself, may not use it, at a different place, and, if he does so, may be restrained by the patent-owner, on the theory that the patent-owner's reserved incorporeal rights respecting that different place have been invaded.

Both of these illustrations show the difference between the right of property in a machine itself covered by a patent and the right of property in the patent covering such machine, and the possibility of the complete severability and independent ownership of these separate rights.\*

\*The following cases illustrate instances of the grant by a patent owner of limited rights that have been upheld by the courts:

The right to manufacture the patented article by the employment of six persons and no more. *Brooks v. Ryan*, 2 Robbs. Pat. Cas., 161; the right to use six machines within a certain county and to dispose of the product in such county and nowhere else. *Woodworth, et al., v. Cook*, 1 Fish. Pat. Cas., 423; the right to use the patented structure but once. *American Cotton Tie Supply Co. v. Bullard, et al.*, 4 Banning & Arden, 520; the right to manufacture goods of a particular variety under the patentee's process. *Goodyear v. Congress Rubber Co.*, 3 Blatchf., 449; the right to manufacture articles of certain given dimensions only. *Pope Mfg. Co. v. Owsley*, 27 Fed., 100; the right to manufacture but not to sell. *American Graphophone Co. v. Walcutt*, 87 Fed., 556; the right to restrict the use, manufacture or sale to a certain territory. *Chambers v. Smith, et al.*, 5 Fish. Pat. Cas., 12; *Wicke v. Kleinknecht*, 1 Ban. & Arden, 608; *Hawley v. Mitchell, et al.*, 4 Fish. Pat. Cas., 388; *Rice v. Boss*, 46 Fed., 195; *International Pavement Co. v. Richardson*, 75 Fed., 590; *Philadelphia Creamery Co. v. Davis & Rankin Co.*, 77 Fed., 879; *Wilson v. Sherman*, 1 Fish. Pat. Cas., 361; the right to restrict use so as to be binding even upon a purchaser of a machine under a rent distress. *British Mutoscope & Biograph Co. v. Homer*, 17 Times Law Reports, 213; the right to restrict the price at which the patented article should be sold. *Edison Phonograph Co., et al., v. Kaufman, et al.*, 105 Fed., 960; *Edison Phonograph Co., et al., v. Pike*, 116 Fed., 863; *National Phonograph Co. v. Schlegel, et al.*, 117 Fed., 624; *New Jersey Patent Co., et al., v. Schaeffer*, 144 Fed., 436; *Indiana Mfg. Co. v. J. I. Case Threshing Machine Co.*, 154 Fed., 365; *Rubber Tire Wheel Co. v. Milwaukee Rubber Works Co.*, 154 Fed., 358; *Goshen Rubber Works v. Single Tube Auto & Bicycle Tire Co.*, 166 Fed., 431; *New Jersey Patent Co., et al., v. Schaeffer*, 159 Fed., 171; *Thomas A. Edison v. Ira M. Smith Merc. Co.*, 188 Fed., 925; *Automatic Pencil Sharpener Co. v. Goldsmith Bros.*, 190 Fed., 205; *Winchester Repeating Arms Co. v. Buengar, et al.*, 199 Fed., 786; *Bement v. National Harrow Co.*, 186 U. S., 70; *Virtue v. Creamery Package Co., et al.*, 227 U. S., 8;

IX. In the case at bar, there was no unqualified sale of a specimen of the patented machine for use without restriction.

On the contrary, the machine, through its name-plate, plainly said, in effect, to the purchaser:

"I am a patented machine. I am not free. If I, as a corporeal, physical, thing, pass into your possession, you can not lawfully use me unless and until you have first agreed to terms of use prescribed by the patent-owner, Motion Picture Patents Company, of New York, N. Y., U. S. A. Go to that company and make terms with it, else, if you use me, you may and probably will be sued for infringement."

X. It is objected that the notice was not full enough, that it did not state what "terms" were "to be fixed" by the Motion Picture Patents Company.

The answer, of course, is that the notice plainly and unmistakably indicated that the machine was not free, that it was under the dominance of the named patent-owner, and that such owner was to be applied to for the terms of use. More of a notice was not required, and, if it had been followed up, a reasonable royalty contract would undoubtedly have resulted, as it did in thousands of other cases.

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*Winchester Repeating Arms Co. v. Olmstead*, 203 Fed., 493; *American Graphophone Co. v. Boston Store, etc.*, 225 Fed., 785; *Victor Talking Machine Co. v. The Fair*, 123 Fed., 424; *The Fair v. Dover Mfg. Co.*, 166 U. S., 117; the right to restrict the use of patented machines to supplies or materials furnished by the patent owner. *Heaton Peninsular Button Fastener Co. v. Eureka Specialty Co.*, 77 Fed., 288; *Tubular Rivet & Stud Co. v. O'Brien*, 93 Fed., 200; *Rupp & Wittgenfeld Co. v. Elliott*, 131 Fed., 730; *Broderick Copygraph Co. v. Mayhew*, 131 Fed., 92; *A. B. Dick Co. v. Henry, et al.*, 149 Fed., 424; *Henry, et al., v. A. B. Dick Co.*, 224 U. S., 1; *A. B. Dick Co. v. Milwaukee Office Specialty Co.*, 168 Fed., 930; *Crown Cork & Seal Co. v. Standard Brewery, Crown Cork & Seal Co. v. Greenberger*, 174 Fed., 252; *Crown Cork & Seal Co. v. Brooklyn Bottle Stopper Co.*, 200 Fed., 592; *Incandescent Gaslight Co. v. Cantelo*, 12 Patent Law Reports, 262; *Incandescent Gaslight Co. v. Brogden*, 16 Patent Law Reports, 179.

The truth is, the purchaser, not desiring to pay any royalty, at all, for use, utterly disregarded the notice, refused to apply to petitioner for a royalty contract, and took its chances of being stopped by a suit for infringement.

XI. Observe that, unlike many other cases, there is no question, here, as to whether the patent-owner's remedy is on the patent, for the tort, or on a contract, for damages.

There is no contract. The respondent, though admonished by the notice that a contract must be made with the petitioner, as a prerequisite to use, refused to make one, and can not, therefore, now claim that there was a contract and that petitioner has mistaken its remedy.

#### THE OTHER RESPONDENTS ARE LIABLE AS CONTRIBUTORY INFRINGERS.

The liability of the other respondents, Universal Film Manufacturing Company, and Universal Film Exchange of New York, is that of contributory infringers. They were apprised of the wrongful unlicensed use that was being made of the machine by the respondent, Prague Amusement Company, and co-operated with the latter in the carrying on of such use. On familiar principles, all of the respondents are responsible as joint tortfeasors and are also separately liable. *Lovejoy v. Murray*, 3 Wall 1-11 Walker on Patents, 4 Ed., §406, p. 343.

#### THE INVENTION IN CONTROVERSY AND THE UNIVERSALITY OF ITS USE.

The error of the Court below, in dealing with the only defense considered by it, having been pointed out, it becomes necessary to briefly examine the other defenses that are relied upon, more or less, by the defendants.

This requires, first, an explanation of the nature of the invention in controversy.

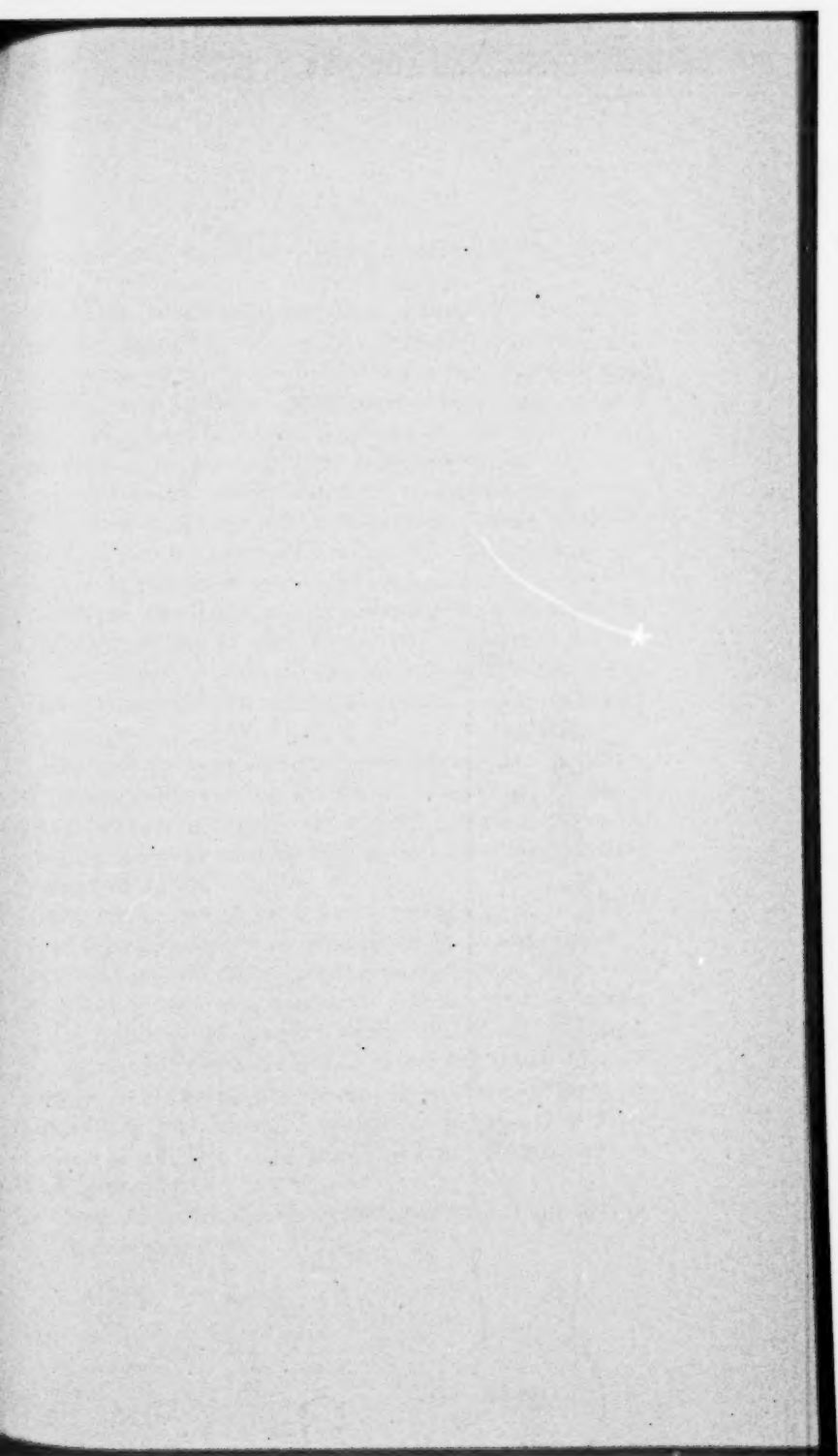
The particular invention upon which this suit is brought consists, generally speaking, in means for moving a quantity of motion picture film of considerable bulk through a motion picture machine with an intermittent motion in such a manner as to obviate undue strain and wear and tear upon the film, and with a regular, uniform and accurate feed.

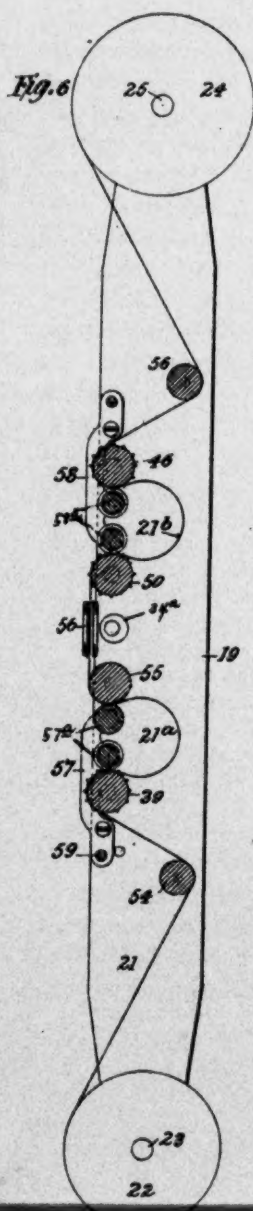
Turning to the patent in suit (p. 719), we find that it purports to be for Improvements in Projecting-Kinetoscope. The specification and drawings disclose a projecting machine, complete in all its parts; but we are concerned only with that special combination of mechanism shown by means of which the perforated film is supported and fed through the machine, which special combination of mechanism forms the subject-matter of the 7th claim of the patent, reading as follows:

*Claim 7 of Patent in Suit.*

"7. The combination with devices adapted to support the bulk of a flexible film and supply it for exposure and receive it after exposure, of positively-driven tooth rotary devices located between and entirely disconnected from said supporting devices and at opposite sides of the exposure window, said toothed devices being adapted to carry and feed the flexible film by the engagement of their teeth with equally-spaced holes made in the edges of the film, and to respectively produce and take up slack in the film, and an intermittently acting rotary feeding device also provided with teeth which engage with the holes in the film, whereby the film is intermittently fed across the exposure opening."

A clear idea of the mechanism called for by this claim may be gathered from an inspection of Fig. 6, Sheet 4, of the drawings of the patent in suit. In said Fig. 6, there are shown two film supporting reels 22 and 24, one at the bottom and the other at the top of the machine, each reel being mounted on an axis 23 or 25, and being of such capacity as





to carry a considerable quantity of wound-up motion picture film.

As, in the machine shown, the movement of film is from bottom to top, the lower reel 22 is called the delivering reel, and the upper reel 24 is called the receiving or take-up reel. Between these two film supporting reels is located a toothed drum 50 which is positively driven by gearing of such character as to impart to it an *intermittent* rotary motion. Located between this intermittently operated toothed drum 50 and the delivering reel 22 is another toothed drum 39, which is also positively driven, but by gearing which imparts to it a uniform *continuous* rotary motion.

Between the intermittently operating toothed drum 50 and the receiving or take-up reel 24, is arranged a third toothed drum 46, which, like the toothed drum 39, is positively driven so as to have a uniform, *continuous* rotary motion.

The continuously operating toothed drums 39 and 46 are of the same diameter and are geared so as to revolve in the same direction and at the same speed. Their direction of rotation is also the same as that of the intermittently acting toothed drum 50.

The relative peripheral speed of rotation of the two continuously operating rotary toothed drums 39 and 46 and of the single intermittently operated toothed drum 50, is such that, during any given interval of time the forward motion of the continuously operating drums 39, 46 will only equal the aggregated forward motions of the intermittently operated drum 50 during the same time so that the aggregate quantity of film advanced or fed by each of these three toothed drums in a given period of time, say a minute, is exactly the same.

Below the intermittently operating toothed drum 50 is an exposure window 56.

To prepare the machine for operation, a supply of perforated film is wound upon the delivering or supply reel 22 loosely mounted upon the fixed axis 23 and the end of the film is threaded through the machine in the following manner; that is to say: The end of the film is first carried upwardly to the right, around an idler roller 54, and thence to the toothed drum 39, around which it is partly wrapped, the teeth of the drum engaging positively with the perforations near the edges of the film, such engagement being insured by an idler roller 57<sup>a</sup> which presses the body of the film against the surface of the drum. After passing the toothed drum 39 and idler 57<sup>a</sup>, the end of the film is drawn out to the right, then brought back to the left and passed between a pair of co-operating idlers 57<sup>a</sup> and 55, a loop of slack 21<sup>a</sup>, being left between the toothed roller 39 and the idlers 57<sup>a</sup> and 55, as shown. From the idler 55 the film is then carried past the exposure window 56 and wrapped partly around the intermittingly operating toothed drum 50, the teeth of the latter positively engaging the perforations of the film, being kept so engaged by an idler 58<sup>a</sup>. After passing the toothed drum 50 and idler 58<sup>a</sup>, the film is again drawn out to the right and returned to the left, so as to form a second loop 21<sup>b</sup>, and is then wrapped part way around the upper toothed drum 46, whose teeth likewise engage with the perforations of the film, being held in such engagement by the upper idler 58<sup>a</sup>. After leaving the upper toothed drum 46, the film passes first around an idler 56 and thence to the receiving or take-up reel 24. The reel 24 is locked to the axis 25 which is frictionally driven (Fig. 2, sheet 2) by a slipping friction belt 30<sup>a</sup> running over a pulley 26.

The operation of the machine thus threaded up with film is as follows:

Assuming that, with the intermittingly operating toothed

drum 50 at a position of rest and with the portion of the film in front of the exposure opening also at rest, the machine is started, immediately the continuously operating toothed drum 39 begins to revolve, clockwise, and operates through the engagement of its teeth with the perforations of the film to positively and uniformly draw film from the supply reel 22 and enlarge the loop 21<sup>a</sup>, while, at the same time and to the same extent, the continuously operating toothed drum 46 draws film from the loop 21<sup>b</sup> and feeds it uniformly and positively to the frictionally driven winding or take-up reel 24, as shown in Fig. 3. At the end of a predetermined interval, the intermittently operating toothed drum 50 commences to also revolve, clockwise, and by the positive engagement of its teeth with the equally spaced perforations in the film, causes the portion of the film extending across the exposure window 56 to be quickly, positively and uniformly drawn past said window, thereby causing the lower loop 21<sup>a</sup> to be momentarily decreased in size and the upper loop 21<sup>b</sup> to be momentarily correspondingly increased in size. Each intermittent movement of the intermittently operating toothed drum 50 is so timed that when the drum is once started it will quickly draw the portion of the film that is directly in front of the exposure window completely away and present and arrest a new surface of the film at the window, the said toothed drum 50, at the end of such movement, stopping positively and causing a positive arrest of the part of the film engaged by its teeth while the continuously operating toothed drums 39 and 46 continue their positive feeding action, uninterruptedly, restoring the loops 21<sup>a</sup> and 21<sup>b</sup> to normal dimensions.

It results, therefore, from the continued operation of the machine, that film is constantly, uniformly and positively withdrawn from the supply reel 22 and fed into the loop 21<sup>a</sup> by the action of the continuously acting toothed drum 39

and that, by means of the continuously acting toothed drum 46 film is constantly, uniformly and positively drawn from the loop 21<sup>b</sup> and fed to the take-up reel 24, while the intermittingly acting toothed drum 50 intermittingly and positively draws film with a quick, positive, uniform movement from loop 21<sup>a</sup> across the exposure opening and delivers it into the loop 21<sup>b</sup>, above.

It will be especially noted that all the strain incident to the drawing of film from the supply reel 22 is taken steadily and uniformly by the toothed drum 39, that the toothed drum 46 steadily, uniformly and positively supplies exposed film to the frictionally driven reel 24 that the intermittingly operated toothed drum 50 itself sustains no strain except that necessary to move the very short portion of the film extending between the toothed drum 39 and the toothed drum 50, and that such short portion of film, itself, because of its lightness and small inertia, is subject only to a minimum amount of strain and wear and tear by the action of the toothed drum 50 upon it.

It should be further noted that the intermittingly acting toothed drum 50 advances the film during each period of movement a definite, positive, invariable amount measured by the regularly spaced holes or perforations in the film with which the teeth of said drum engage; that is to say, if the movement of the said toothed drum 50 is such as to advance four (4) teeth during each interval of movement, an amount of film containing, runningwise, four (4) holes or perforations, and no more, is absolutely advanced at each cycle of movement, without any possibility of slippage of the film on any of the drums.

Since the continuously running toothed drums 39 and 46 and the intermittingly running toothed drum 50 are all positively engaged with the film by the projection of their teeth into the holes or perforations in the film, the aggregate

quantity of film embraced in the two loops 21<sup>a</sup> and 21<sup>b</sup> and included between the continuously running toothed drums 39 and 46 having once been fixed and determined in the threading of the film through the machine, can never afterward be altered in the slightest degree by the continued normal operation of the machine. The effect of this co-ordination is that wear and tear upon the intermittingly acting toothed drum and upon the film itself is never greater than it would be if the intermittent mechanism were acting upon a film only a few inches in length.

Inasmuch as the portion of the film that is acted upon by the intermittent toothed drum is always slack and is never under tension the holes or perforations in the film are never strained by the pull of the teeth.

The uniform maintenance of the loop 21<sup>a</sup> by the continuously acting positively engaging toothed drum 39 prevents the possibility of the film ever being drawn taut or strained by the intermittingly acting toothed drum 50, and the positive engagement of the continuously running toothed drum 46 with the film also prevents the film from ever being drawn taut against the intermittent toothed drum 50 by the friction drag of the take-up reel 24, and there is thus no possibility of the film ever being exposed to strain by the regular or irregular operation of the machine.

If the continuously running toothed drum 46 were omitted, the action of the frictionally-driven take-up reel would be most erratic and would subject the film to a series of severe strains, for the following reasons: The frictionally driven take-up reel with its constantly accumulating film would necessarily constitute a mass of considerable weight that would be expected to be rotated by the comparatively gentle friction of a constantly slipping belt. These conditions would preclude the possibility of stopping and starting the take-up reel in synchronism with the stopping

and starting of the intermittingly acting toothed feeding device. Therefore, while the frictionally driven take-up reel was starting up and getting under way, a considerable quantity of slack film would accumulate between the intermittent feeding device and the take-up reel, and this slack would be taken up as the frictionally driven reel acquired velocity and would finally be entirely exhausted and stop with a jerk that would strain the perforations of the film against the teeth of the intermittent feeding device and tear them out. This jerk would, at the same time, arrest the movement of the frictionally driven take-up reel and the process would then be repeated indefinitely, becoming more severe as the quantity of film upon the reel and the resulting diameter of the roll of film increased.

The introduction of the second continuously operating toothed drum 46 obviates this difficulty by maintaining a constant supply of slack film between said toothed drum 46 and the intermittingly acting toothed drum 50, and by supplying film to the frictionally driven take-up reel at a constant and uniform rate, so that the movement of this reel is never stopped and its velocity is not permitted to accelerate beyond the speed at which the film is delivered from the said constantly feeding toothed drum.

The surface velocity of the roll of film upon the take-up reel thus always remains just sufficient to keep the film between the take-up reel and the constantly feeding toothed drum under a gentle, uniform tension that may be regulated by the tension of the slipping friction belt that drives the take-up reel.

If the continuously running toothed drum 29 were omitted, the intermittent feed of the intermittently operating toothed drum 50 would pull directly upon film coming straight from the supply reel 22 carrying a large bulk of film, and the sudden quick pull of the intermittently acting

drum 50 in its effort to overcome the inertia of the mass of film wound upon the reel 22 would result in tearing or straining the sprocket holes in the film.

The quantity of film commonly used in machines of this class is 1,000 feet in length and weights several pounds. The film is commonly fed through the machine at such a rate that the intermittent sprocket wheel makes about 16 movements per second. It is obvious that such a series of quick jerks directed to pulling film off from a heavy reel would inevitably result in the rapid destruction of the film and would be fatal to the accurate registration of successive portions of the film at the exposure window, where variations of registration amounting to a few thousandths of an inch produce upon the screen very serious displacements of the projected picture since a picture three-quarters of an inch high at the window is commonly magnified on the screen to a height of ten or twelve feet.

From the above detailed description of the construction and mode of operation of the film supporting and feeding devices of the machine, it is clear that every element detailed in claim 7 of the patent is legitimately combined with every other element and that all the elements are essential to the proper operation of the machine, that is to say:

(a) The devices for supporting the film are essential since they must be of a character to support a considerable bulk of film, *i. e.*, a band or strip of film, a thousand feet or more in length, wound spirally. This mass of film has considerable weight and inertia and must be supported so as to revolve readily on its axis when it is rotated."

(b) The positively driven rotary toothed drums are also essential. They must be entirely disconnected from the film supporting devices in order that they

may be independent of said supports and operate upon the free ribbon or strip of film itself, instead of directly upon the bulk of film or its supports. They must be positively driven and continuously rotated in the same direction in order that they may act synchronously and steadily to produce and take up a like amount of slack in the film.

They must also be located between the film supporting devices and at opposite sides of the exposure window in order that the slack portion of film produced may extend across the exposure-window.

They must be toothed and their teeth must co-operate with equally spaced holes or perforations in the edges of the film, so that the connection between drum and film shall be absolutely positive, like the engagement of a pinion with its rack, thereby ensuring a positive and uniform feed of the film unaffected by the weight, bulk or thickness of the film dealt with, the amount of tension on the film, or the surface condition of the film, or the surface condition of the body of the drums, thereby distinguishing from friction feed devices whose accuracy of operation is affected by mass of film, tension of film, and surface condition of both film and frictional feeding devices, rendering the production by them of maintained, uniform loops or slack portions of film impossible, without frequent hand-adjustments to correct variations due to slippages or other causes.

(c) The intermittingly acting rotary toothed feed drum is also essential. It, like the continuously acting rotary feed toothed drums just described, must have its teeth arranged so as to engage the equally spaced holes or perforations in the film and intermittingly feed the slack portion of the film with absolute positiveness,

uniformity and regularity, picture by picture, and independent of any shrinkage of the film to and away from the exposure opening, and regularly, uniformly though intermittently increasing and decreasing, respectively, the size of the loops of the film as said loops are being respectively constantly and continuously replenished and depleted by the action of the continuously operating toothed feed drums.

If this intermittently acting device, instead of being a toothed drum co-operating positively with equally spaced holes in the film, consisted of an intermittently acting frictional feeding device, operating on the film by friction merely, variations in the intermittent feeding of the film would result due to the impossibility of maintaining stable conditions because of variations in the thickness of the film, variations in the condition of the surface of the film, variations in the condition of the frictional feeding surfaces themselves, and variations in the pressure and surface speed of said frictional feeding surfaces.

It goes, without saying, that any variation in the feed of the film, however small it may in itself be in any individual instance, will, when many times repeated, in the handling of a long length of film, cause such a gradual creeping of the film as will, after a while, carry the pictures out of registration with the exposure opening and require the stoppage and readjustment of the machine, or the employment of some hand-operated corrective means that may be manipulated while the machine is running, to bring the pictures again in proper registry.

It follows, therefore, that any machine that does not have (1) supports for the bulk of film to be operated upon, (2) independent, positively driven toothed ro-

tary feeding devices located at opposite sides of the exposure opening for positively and uniformly engaging equally spaced holes or perforations in the film and maintaining a uniform slack portion of film between them and across said exposure opening, and (3) an intermittently operated toothed rotary feeding device also provided with teeth for positively engaging the said equally spaced holes or perforations in the slack portion of the film, neither anticipates nor infringes the invention embodied and claimed in the 7th claim of the patent in suit.

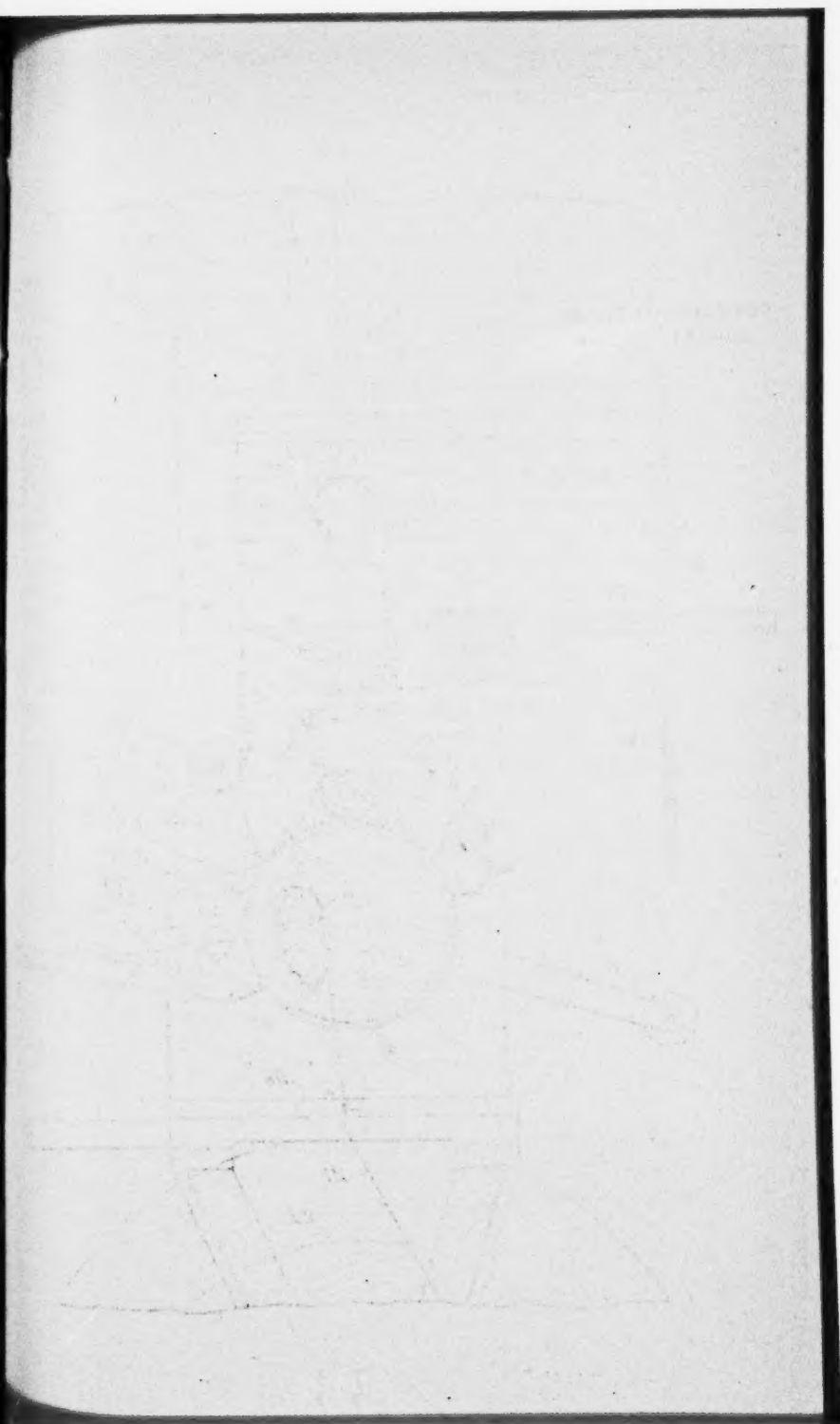
The utility of the combination of this 7th claim is not open to question. In the first place, the defendants use it, exactly, and are in no position to deny its utility. In the second place, it is universally used on all projecting machines now on the market and has been so universally used for many years (Marvin, R-D Q. 145, p. 60); and has been used on upwards of forty thousand (40,000) projecting machines, of which twenty to twenty-five thousand (20,000 to 25,000) are now in use.

#### THE RESPONDENTS' MACHINE.

There are contained in the record four sheets of drawings illustrative of respondents' machine, marked "Complainant's Exhibit Simplex Machine" (p. 737, *et seq.*).

In this machine the perforated film is fed through the machine downward from top to bottom, instead of upward from bottom to top, as in the machine of the patent in suit, but this is, of course, an immaterial difference.

Referring to the drawings, and particularly to Fig. 1 (page 737), it will be seen that in respondents' machine there is a delivery or supply reel 22 at the top of the machine, a receiving or take-up reel 24, at the bottom of the machine,



COMPLAINANT'S EXHIBIT  
"SIMPLEX" MACHINE

FIG. 2

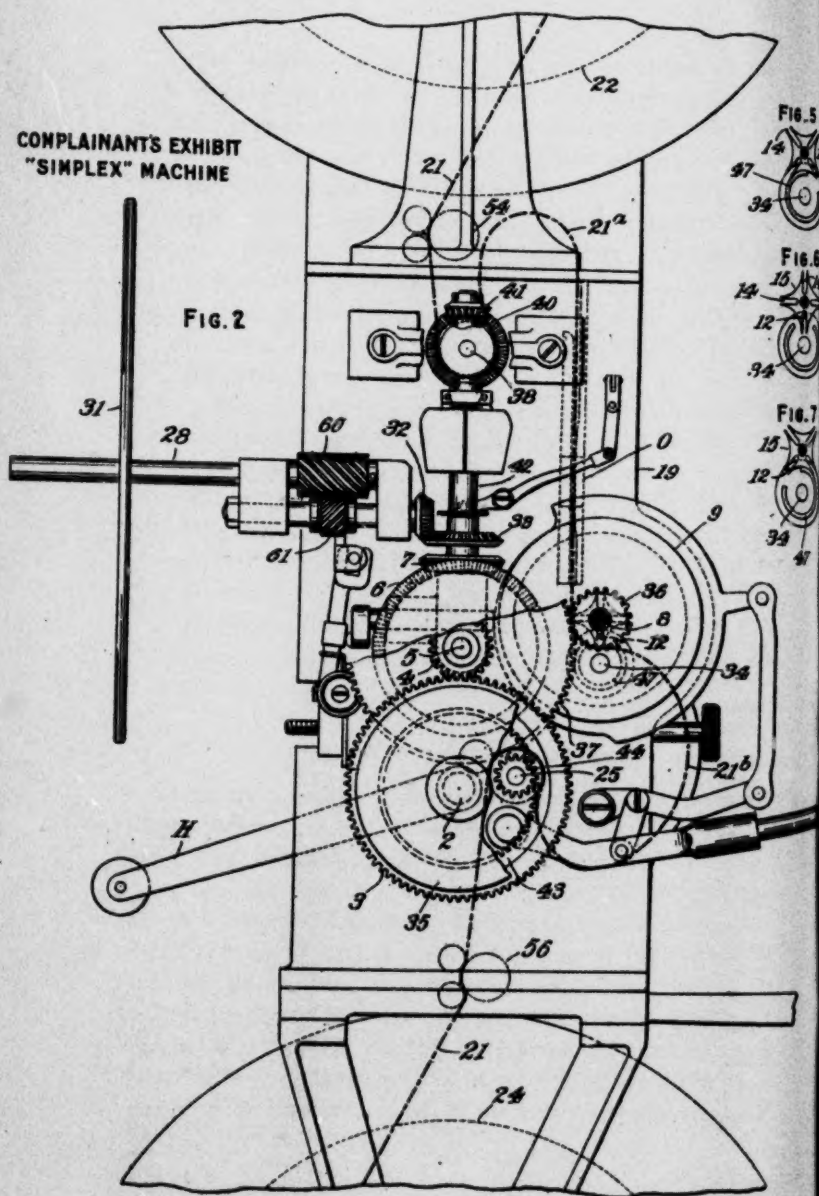


FIG. 5



FIG. 6

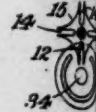


FIG. 7



adapted to support a considerable bulk of perforated motion picture film, two continuously rotating toothed drums 39 and 46 and an intermediate intermittingly operating toothed drum 50, the teeth of all the drums fitting the equally spaced holes or perforations in the film 21.

In threading the film 21 through the machine it passes from the delivering or supply reel 22 down and partly around an idler 54, thence partly around the continuously rotated toothed drum 39, then is formed into a loop 21<sup>a</sup>, then is conducted by suitable guides past the exposure window O, thence passes partly around the intermittingly acting toothed drum 50, then is formed into another loop 21<sup>b</sup>, then passes partly around another continuously operating toothed drum 46, and thence over an idler 56 to the receiving or take-up reel 24.

In this machine, as in the machine of the patent in suit, the two continuously rotating toothed drums 39 and 46 are positively driven and the intermediate intermittingly acting toothed drum 50 is also positively though intermittingly driven.

Mr. Marvin, petitioner's expert, testifies to the substantial sameness of defendants' machine and the machine of the patent in suit (Marvin, Q. 17, p. 30, *et seq.*) and defendants' expert, Mr. Hammer undertakes no denial of his testimony.

There can be no doubt, therefore, that respondents' machine complained of is within the patent.

#### PRIOR ART DEFENSES.

##### *The Chinnoek Camera.*

The respondents have offered proofs regarding the alleged prior invention of one Charles E. Chinnoek, of Brooklyn, New York, of a camera alleged to contain the combina-

tion of the 7th claim of the patent in suit. The defense is not made out as the machines are not the same.

An idea of the Chinnock camera may be obtained from the remaining one of the Chinnock cameras offered in evidence as "Chinnock Camera (Exhibit 40)," from five (5) photographs of such camera (pp. 1309 to 1317, inclusive) and a somewhat inaccurate diagram designated "Defendants' Exhibit No. 43" (p. 1319).

Mr. Marvin, petitioner's expert, carefully examined all of the proofs in regard to Chinnock's work and gives a very clear epitomization of the same (Q. 161, *et seq.*, pp. 335-341), which we ask the Court to read, to avoid repetition here. Suffice it to say, Mr. Marvin in his deposition makes it perfectly clear that Chinnock's camera is not an anticipation of the 7th claim of Latham, because it lacks at least two essential elements called for specifically by the claim, to wit:

- (1) "positively-driven *toothed* rotary devices located \* \* \* at opposite sides of the exposure window, said toothed devices being adapted to carry and feed the flexible film *by the engagement of their teeth* with equally spaced holes made in the edges of the film \* \* \*" and
- (2) "an intermittently-acting rotary feeding device *also provided with teeth* which engage with the *holes* in the film," etc.

The film of Chinnock is unperforated and the continuously operating feeding devices as well as the intermediate intermittently operating feeding device are not toothed. Friction is relied upon for feeding and frictional feeding will not do, as Mr. Marvin points out.

If respondents wish to use Chinnock's apparatus, they are free to do so. It will not answer, and they know it.

*The Marey French Patent of 1890.*

Another alleged anticipation relied upon by respondents is the Marey French patent of 1890. The drawings of this patent are found in the record (p. 1175), also a translation of the specification (p. 1169), and an alleged diagrammatic representation of the device disclosed by the patent (p. 1177).

Mr. Marvin, petitioners' expert, dissects the patent (p. 341, *et seq.*), and shows its shortcomings. It has no "positively driven toothed rotary devices adapted to carry and feed the flexible film by engagement of their teeth with equally spaced holes made in the edge of the film," nor "an intermittently acting rotary feeding device also provided with teeth which engage with the holes of the film." The film employed is not perforated at all.

*The Marey French Patent of 1893*

The French patent of Marey of 1893 (p. 1191) is also relied upon. An alleged diagrammatic representation of the structure disclosed by it has been introduced by the respondents (p. 1193).

Mr. Marvin, petitioner's expert, discusses this patent and clearly shows its inadequacy as an anticipation (p. 343, *et seq.*). The apparatus shown has no "positively-driven toothed rotary devices" for continuous feeding, nor any "intermittently acting rotary feeding device also provided with teeth," and the film employed is not perforated at all.

*The U. S. Patent of Gray, No. 540,545, June 4, 1895.*

This patent to Gray (p. 1225) is carefully analyzed by Mr. Marvin, petitioner's expert (p. 345, *et seq.*) and found wanting. It shows a device that is entirely impracticable and there is no evidence that it was ever even attempted to be used. Mr. Marvin says (p. 348):

"But whether the Gray device could be made to operate or not, it certainly does not show positively acting toothed wheels for withdrawing the film from the film supply reel, or delivering the film to a winding reel, or any slack portion of the film between such film feeding wheels, nor a toothed intermediate wheel acting intermittently to feed the slack portion of the film positively."

An alleged diagrammatic representation of the device of the patent has been offered by respondents (p. 1231).

*Green & Evans British Patent No. 10,131 of 1899.*

The drawings of the patent (p. 1161) and a couple of alleged diagrammatic representations of the device disclosed therein (pp. 1165, 1166), are shown in the record.

Mr. Marvin, petitioner's expert, makes a clear-cut description of the mechanism of this patent also (p. 348, *et seq.*), and points out its inadequacy as an anticipation.

It does not show the prime elements of the combination of Latham's 7th claim, namely:

"positively-driven toothed rotary devices located between and entirely disconnected from said supporting devices and at opposite sides of the exposure window, said toothed devices being adapted to carry and feed the flexible film by the engagement of their teeth with equally spaced holes made in the edges of the film and to respectively produce and take up slack in the film,"

nor

"an intermittently-acting rotary feeding device also provided with teeth which engage with the holes in the film, whereby the film is intermittently fed across the exposure opening."

*The Printing Press Patents—Kidder, 224,440 of 1880; Echerson, 433,766 of 1890; and Cox, 508,814 of 1893.*

These patents are for improvements in a non-analogous art. Aside from that, however, they are not anticipatory. Kidder (p. 1115) and its alleged diagrammatic representation (p. 1137), Echerson (p. 1127) and its alleged diagrammatic representation (p. 1139) and Cox (p. 1135) and its alleged diagrammatic representation (p. 1141) are all discussed by Mr. Marvin, petitioner's expert (p. 350, *et seq.*).

In all of these machines the web of paper manipulated is unperforated and the feeding is all done by *frictionally* acting feeding devices which obviate the necessity of a serious discussion of them, for reasons hereinbefore set forth.

*The Edison Patents, No. 491,993, dated Feb. 21, 1893; No. 493,426, dated Mar. 14, 1893; No. 589,168, dated Aug. 31, 1897.*

It is not contended by respondents that either of these Edison patents discloses the combination of devices covered by the 7th claim of the patent in suit. They simply cite them to show that, as early as Aug. 24, 1891, the date of the application for the Edison patent 589,168 (p. 1217), Mr. Edison proposed the use, both in a camera and in a projecting machine, of an intermittingly operated toothed feed wheel for feeding a perforated film across an exposure opening, as a substitute for a constantly acting device for continuously feeding the film.

In the machine of these early Edison patents there was no mechanism for forming loops in the film so that a short slack portion only would be acted upon by the proposed intermittingly acting feeding wheel, but the said feeding wheel was adapted to draw the film directly from the reel

and required the whole body of film to be moved with a jerk, each time. This arrangement interdicted the use of any but very short films of little weight. It is significant that not till after the invention disclosed in the patent in suit, by Latham, did Edison put out any projecting machines save those of the so-called "peep hole" variety wherein was employed a continuously running non-interrupted film, such as shown in Figs. 1 and 2 of the Edison patent 493,426 (pp. 1200-1201).

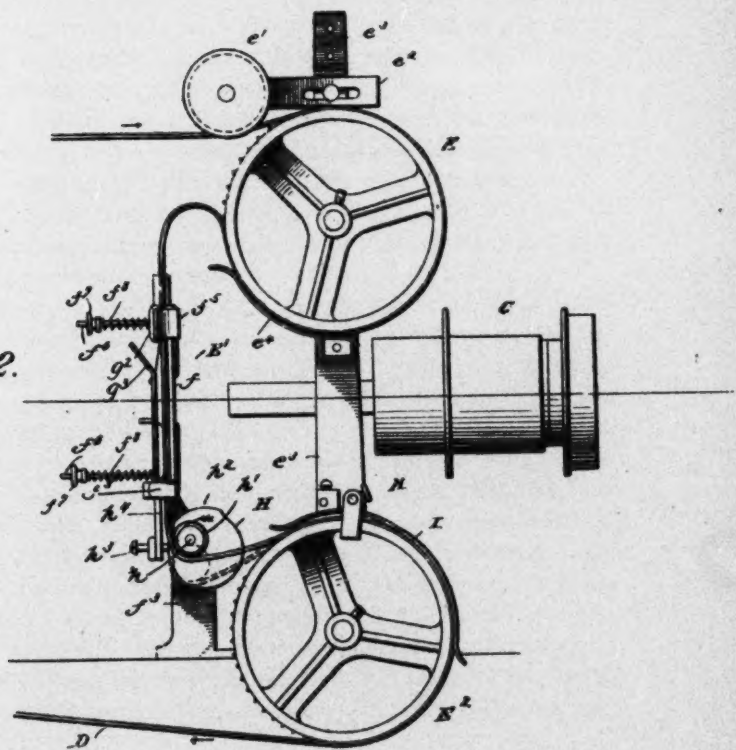
It remained for Latham to teach Edison and all prior investigators that by employing positively acting continuously operating *toothed* feeding devices for forming and maintaining loops and a definite slack portion in a perforated film, in combination with a *toothed* intermittently acting feeding device for operating on such slack portion of the perforated film only, it was possible to use films of indefinite length and to feed such slack portion, picture by picture, and step by step, past the exposure opening, without liability of rupturing the film or of permitting the pictures to creep out of registration with the exposure opening.

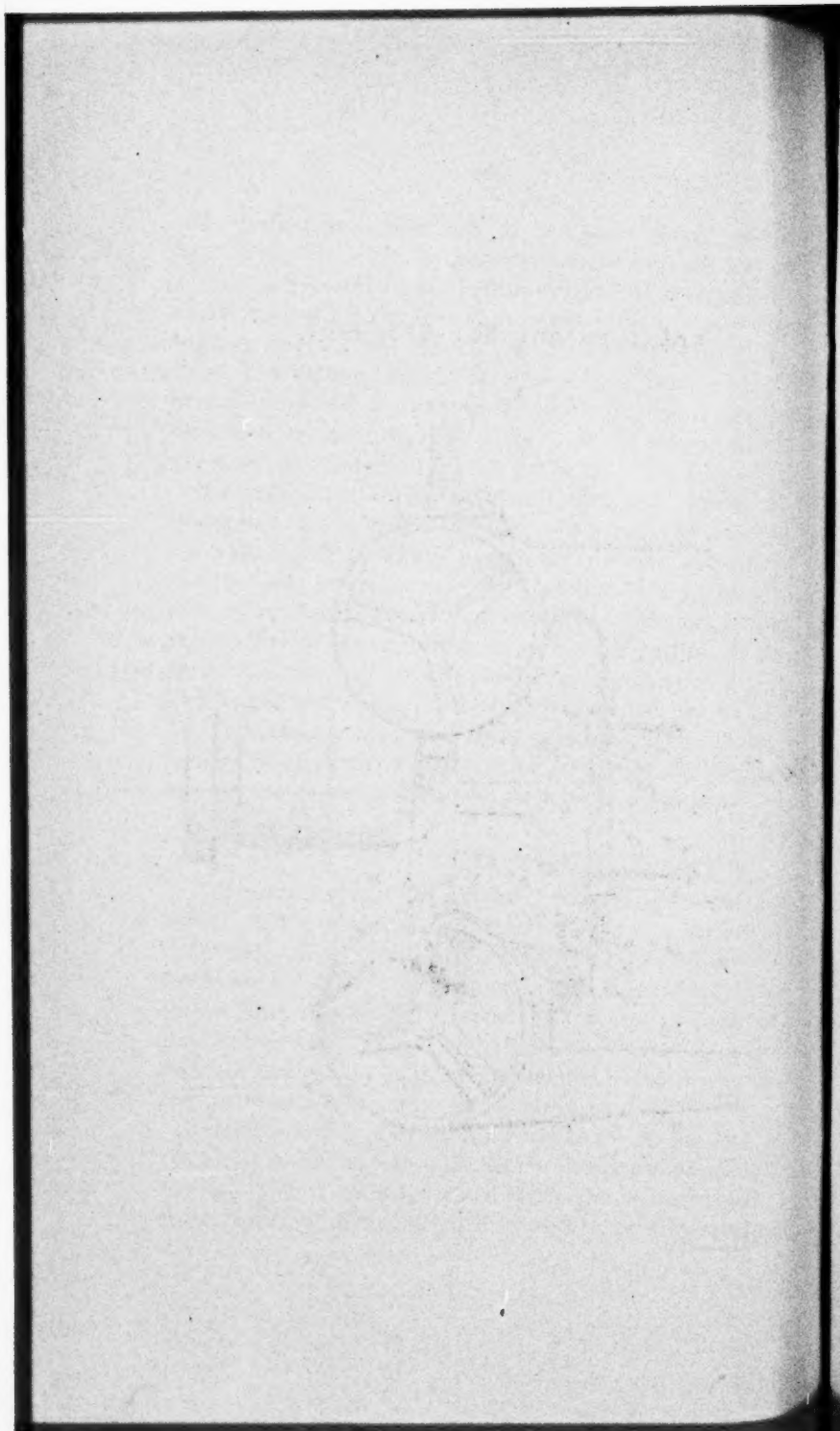
*The Armat Patent No. 673,992, of May 14, 1901.*

This Armat patent (p. 1263) is respondents' chief reliance. A diagrammatic representation of the mechanism of it (not altogether faithful) has been introduced by the defendants (p. 1271). Apart from the fact, hereinafter to be shown, that the Armat invention is too late in point of time to be an anticipation of Latham, the Armat structure does not disclose the Latham combination called for by the 7th claim and is, therefore, of no pertinence.

Referring to Fig. 2 of the drawings of the Armat Patent (p. 1260) it will be seen that there is shown a continuously rotating toothed drum E located above and another continuously rotating toothed drum E located below the exposure

Armat Patent No. 673,992.





opening or window  $f^4$  (Fig. 4), a tension device  $E'$  for guiding and clamping frictionally the film  $D$  on opposite sides of the exposure opening, and an intermediate intermittingly acting "beater" for acting on the film to feed it, said beater consisting of a disk  $H$ , having a friction roller  $h'$  which is adapted to impinge frictionally against the film and pull it down with a quick jerk as the disk  $H$  is rotated, and having also a cam  $h^2$  for striking the end of a screw  $h^3$  and releasing the clamp at the moment the roller  $h'$  commences its feeding action on the film. The operation of the two continuously rotating feed wheels  $E$ ,  $E^2$  would undoubtedly be to produce a portion of slack film between them extending across the exposure opening and the operation of the rotating beater  $H$  would also be to open the clamp and intermittingly feed a portion of this slack film past the exposure opening.

Now, if petitioner were asserting here a broad claim to a combination of two continuously operating toothed feed rollers for producing a slack in the film, with *any kind* of an intermediate intermittingly acting feeding device for intermittingly feeding such slack portion, this Armat device, if early enough, might have some pertinence, but inasmuch as petitioner is here asserting only a relatively narrow claim (the 7th) covering a specific combination of specifically contrived elements, one of which elements is an intermittingly acting *toothed* drum for producing a given result, *i. e.*, the feeding of the perforated film, rapidly, evenly, positively, with the minimum amount of strain upon it and without injury to its photographic surface, the Armat device has no relevance whatever, for the following reasons:

- (a) In the Latham device, as claimed in the 7th claim, the intermittent feeding element is:

"an intermittently acting rotary feeding device also provided with teeth which engage with the holes in the film."

In the Armat device this element is a "beater," consisting of a disk bearing a friction roller which beats against the film and pulls it frictionally and does not engage with the holes in it at all.

In point of fact, Armat was rather keen to have *no* engagement of his feeding device, with the holes in the film, for in his patent he states, referring to the friction roller in the beater disk:

(Record, p. 1266, line 29, *et seq.*, Col. 1, page 3 of patent.)

"This roller is preferably provided with a suitable covering and may have reduced ends, as shown in Fig. 8, so that it may engage the surface of the film between the perforations in order to prevent enlarging or otherwise distorting the perforations."

(b) In the Latham device, the teeth of the intermittently operating toothed feed drum are always positively engaged with the holes in the slack portion of the film like a pinion with its rack in readiness to instantly advance the film when the drum is put into action. The drum and film are, in effect, positively geared together and move as a unit.

In the Armat device, on the other hand, the friction roll *h'* of the beater is normally separated from the slack portion of the film (*i. e.*, that portion which lies between the clamp guide and the continuously rotating lower toothed wheel *E'*) and when said friction roll is rotated by the turning of the disk *H* said roll strikes the stationary film with a glancing blow which pro-

duces a quick tension on the film that has to be resisted by the walls of the perforations engaged with the rapidly receding teeth of said continuously rotating lower feed roll, thereby tending to tear out said perforations and injure the film.

(c) In the Latham device, the parts of the film engaged by the intermittingly acting feed device are parts that are removed from the portion of the film devoted to the photographic pictures, *i. e.*, the margins of the film, and there is therefore no abrasion of the film during the feeding operation.

In the Armat device, on the other hand, only the picture bearing part of the film, *i. e.*, the middle part is acted upon by the feeding device or beater (the perforated margins being purposely left untouched as we have seen) and each time the beater roller strikes the film it sweeps across such middle portion with frictional contact, thereby tending to deface and scratch the film and produce that ghost or rain effect observable when a defaced film is exhibited.

But, say the respondents, conceding that the positively acting toothed drum feeding device of Latham is better than the frictional beater device of Armat, a positively acting toothed drum feeder was itself an old appliance as shown in the prior Edison patents, and, therefore, there was no invention required of Latham to put Edison's feeder in place of Armat's beater; it was a mere substitution of equivalents.

This argument is specious and of no force.

Latham made a perfectly good combination of instrumentalities for producing a new result. It was not essential to the integrity of that combination that any one of the

instrumentalities, separately considered, should have been new. All, or some or none of them might well have been old, and the *combination* of them new.

Compared with Edison, Latham's combination shows novelty and utility. Compared with Armat it also shows novelty and utility.

Continuously operating toothed feeding devices co-operating with a perforated web were old, *per se*, when Edison invented his positive intermittingly operated toothed feeder. *If* Edison had thought of the combination of such continuously operating toothed devices with his intermittingly acting toothed feeding device he might have anticipated Latham; *but he did not*. Similarly, *if* Armat had thought of combining with his continuously acting toothed feed wheels an intermittingly acting toothed feed wheel he might have anticipated Latham; *but he did not*.

The logic of respondents' argument requires the Court to find that Latham did not first invent the combination of the 7th claim, because Armat first invented it. But Armat never claimed to have invented it, and while his patent shows four distinct forms of his beater feeder (see Figs. 2, 9, 10, and 11 of his patent, pp. 1260-1261), there is no suggestion anywhere that he ever used or thought of using a rotary toothed intermittingly operating toothed feeder as a substitute for a beater. But if he had had the idea of using such a device much work of an inventive order would have been required to embody and co-ordinate it with the other elements.

We would particularly ask the attention of the Court to the discussion of this Armat patent by Mr. Marvin, petitioner's expert (p. 353, *et seq.*). He shows that, although the Armat apparatus would doubtless work, it would work but poorly and be open to many objections not found in the Latham construction; that the Armat struc-

ture is not commercially practical for a projecting machine where the film is used over and over; that there are no machines on the market embodying it; and that its use would certainly be a backward step in the art.

*The Joly French Patent No. 249,875, dated August 26, 1895, and the Joly U. S. Patent No. 569,875, of October 20, 1896.*

The Joly French patent (p. 1241), the Joly U. S. patent (p. 1249) and the respondents' diagrammatic representation (imperfect though it be) may be considered in this connection.

Assuming for present purposes and contrary to the fact that the apparatus of Joly was early enough in point of time, still, it is not an anticipation of Latham.

As pointed out by Mr. Marvin, petitioner's expert (p. 358), Joly, like Armat, employed a *beater* operating on the film with frictional impingement only and not an intermittingly acting toothed wheel positively engaging the perforations of the film, like Latham's. All the objections urged against Armat are applicable to Joly.

If, as respondents contend, the toothed intermediate feeder was an obvious substitute and equivalent for a beater, it is somewhat remarkable that, considering the immeasurable superiority of such toothed wheel feed over a beater, Joly did not somewhere, in either his French or U. S. patent suggest it as a substitute. He did not, however, but, like Armat, was industrious in suggesting an additional form of *beater* (p. 1254, column 2, lines 85 to 89).

*The Casler Patent No. 466,495, of January 22, 1901.*

The inapplicability of this patent as a reference to the 7th claim of the Latham patent is thus very clearly shown by Mr. Marvin, petitioner's expert (p. 359):

"This apparatus is designed to handle unperforated film. It comprises an upper and a lower support for the bulk of the film, between which supports is located an exposure window. Adjacent to the exposure window is an intermittently operated clamp adapted to pinch the film and prevent its movement. Between the supports are two continuously operating frictional feed wheels, one located adjacent to the upper support and adapted to draw film continuously from the upper support, the other being located adjacent to the lower support and adapted to continuously deliver the film to the lower support. Between these two sets of continuously operating feed wheels is another set of continuously operating friction rollers, between which the film passes, and by which the film is gripped. The operation of the machine is as follows: The revolution of the upper friction feeding rollers draws the film from the supply reel and delivers it in the form of a loop above the exposure window where the film is clamped fast by the intermittently acting clamp. In the meantime the continuous feed rollers located below the exposure window are revolving and straining the film taut between the clamp and themselves. And the lower continuously feeding friction roller is taking up the slack film that exists between the continuously running feed rollers below the exposure window and itself and delivering film to the frictionally driven take-up reel.

When the clamp at the window operates and releases the film, it is drawn downward rapidly across the exposure window by the continuously running friction rollers located below the window. These rollers run at a higher peripheral velocity than do the other continuously feeding rollers, so that by their operation they pull out slack that has accumulated above the exposure window and strain the film taut against the upper feed rollers. They then continue to pull down the film as rapidly as it is delivered by the upper feed rollers until the intermittently acting clamp again seizes the film and stops its motion.

In this patent, means are indicated by which the relative rotation of the feed wheels and the operation of

the clamp may be varied from time to time by the operator in order that the successive variations in the pitch of the successive pictures may be corrected so that the creep of the film before the exposure window may be avoided, thus enabling the operator to maintain the successive pictures continuously in registration before the exposure window.

This structure differs from the structure of the Latham patent in suit in that it discloses no toothed rotary feeding device that engages with holes in the edges of the film separate and distinct from the supports, and that feeds the film positively and regularly, and no rotary toothed intermittently acting feeding devices.

This device of the Casler patent is adapted to be used in projecting a series of pictures on a film by means of the continual manipulation of the operator, but it is not adapted to automatically project a series of motion pictures, because no means are indicated for automatically maintaining the presentation of successive pictures in register at the exposure window."

As Mr. Marvin, petitioner's expert, had had practical experience with cameras and projecting machines in which the film was frictionally driven, and knew their shortcomings thoroughly well he was questioned generally, as to their mode of operation and gave the following illuminating testimony:

"Q. 196. In cameras having such frictionally driven mechanism, are the pictures produced equally or unequally spaced?

A. In frictionally driven cameras they are always unevenly spaced. I know that very extensive, very serious, efforts have been made under my direction to overcome that difficulty. But in spite of a variety of devices and the greatest possible refinement in the mechanism, I have never known it to be possible to produce a frictionally operated camera that would produce uniformly spaced pictures.

Q. 197. Where friction devices were employed in a camera and unequally spaced pictures resulted, what expedient, if any, was adopted to produce the positives that would be equally spaced?

A. The process of producing equally spaced positives from unequally spaced negatives was a little involved. In the beginning, it involves the—

Q. 198. I do not ask you to go into all the details, but just state the result.

A. I can tell it briefly, I think.

Q. 199. Yes?

A. In order to obtain uniformly spaced positives from irregularly spaced negatives, it was necessary to perforate the negative film with registry holes at the time the photographic exposure was made. These registry holes were subsequently used in a special printing machine to correct the irregularities in the spacing of the negative, and to print regularly spaced positives. These regularly spaced positives were then suitable to be used in special projecting machines.

Q. 200. When you got your regularly spaced positives and used them in projecting machines, in which the film was frictionally driven, what then did you have to do to keep the pictures uniform in register with the exposure opening?

A. In spite of the greatest efforts, we found it impossible to produce a frictionally feeding projecting machine to handle unperforated films that would maintain the successive pictures in register at the exposure window, for no matter how perfectly the machine was constructed and how perfect the spacing of the positive pictures upon the film, we found that the accumulating errors of registration would constantly operate to make the picture appear to crawl up or down on the screen. For example, supposing we should set the frictional feed device so as to feed the height of one picture as exactly as we could—but in practice we might find that it was feeding one-thousandth of an inch too much. That thousandth of an inch would be negligible between adjacent pictures, but after we had progressed ten pictures it would amount to ten one-thousandths,

and after we had fed a thousand pictures it would amount to an inch, which would be the total height of the picture. We found it impossible to so adjust the machine that it would continue to feed perfectly. The machine was, as you may express it, in a condition of unstable equilibrium. In order to correct this and to make it possible to use the frictionally driven machines with unperforated film, we resorted to the expedient of putting in a regulating device by which the feed of the machine could be constantly varied. Then, as the operator watched the picture upon the screen, when he found the picture beginning to creep up a little, he moved his handle down, and that changed the feed of the machine a trifle so that the picture would commence to travel down, and when it got down a little ways, he would move it up again, and then the picture would commence to travel up, so that the picture projected by a frictionally driven device of that kind always appeared to gradually seesaw up and down the screen a little, and could only be made approximately central by the continued vigilance of the operator. If he were to leave the machine for a fraction of a minute, the picture would creep entirely off."

*The Other Patents Set up by Respondents of no Importance.*

We have not taken time to discuss the Le Prince patent No. 376,247 of Jan. 10, 1888 (p. 1149), the Mayer patent No. 525,991 of Sept. 1, 1894 (p. 1223), and the Latham patent 600,113 of Mar. 1, 1898 (p. 1291).

They were considered by Mr. Marvin, petitioner's expert, and were found by him not to disclose the combination of the 7th claim of the patent in suit (p. 361).

THE LATHAM IMPROVEMENT AS SUMMARIZED BY MR. MARVIN, PETITIONER'S PRACTICAL EXPERT.

After reviewing the so-called prior art structures, Mr. Marvin, petitioner's practical expert, a man of the widest

possible experience in this art, gave the following testimony, showing the practical value of the Latham structure:

"Q. 185. Taken as a whole, what improvement or advantage, if any, does the structure of the Latham patent in suit present over any individual structure shown in any individual patent or structure of the prior art to which your attention has been directed?

Mr. Jeffrey: I object unless the question will be limited to the structure which is described in claim 7 in suit.

Mr. Church: The witness may limit his answer to that structure.

A. The Latham patent in suit discloses a structure that is superior to any structure disclosed in any of the patents to which reference has been made, in the means for manipulating a body of flexible film of considerable bulk so as to feed it across an exposure window intermittently with positive quick movement without subjecting the film at any part, or at any time, to any severe tension or strain and to move the film intermittently across the exposure window in a manner uniform as to equally spaced perforations along the edges of the film, and independent of the linear dimension of the film as affecting the pitch of the perforations.

The mechanism is further adapted to so move the film automatically and without the continued manipulation or adjustment of any part of the mechanism other than supplying of power by hand or otherwise to the main shaft.

Q. 186. What are the physical elements of this mechanism by which the result you speak of is attained?

A. The physical elements are first two supports for the bulk of the film, a fixed support adapted to receive the film before use and a frictionally rotated support adapted to receive the film after use. Between these supports and entirely disconnected from them are two

toothed rotary feed wheels adapted to continuously draw film from the supply reel and deliver it to the take-up reel, and to respectively produce and take up slack film, and an intermittently acting rotary toothed feeding device located between the two continuously operating toothed feeding devices and adjacent to an exposure window, and adapted to feed the film across the exposure window with an intermittent motion; all of these feeding devices having teeth adapted to engage equally spaced perforations made in the edges of the film.

Q. 187. When in your testimony you have spoken of a maintained slack portion, or maintained loop, or loops, what do you mean, and how is the maintained slack or the maintained loops provided in the actual operation of the machine?

A. By the maintained loops referred to in the description of this mechanism and its operation, is meant the quantity of slack film that exists between the upper pair of continuously running toothed feed wheels and the intermittently operating toothed feed wheel, and between the lower pair of continuously running toothed feed wheels and the intermittently operating toothed feed wheel. This slack or loop of film is adjusted by the operator when he threads the machine. It may be of any convenient magnitude.

After the machine has been threaded and the machine started in operation, the total quantity of the slack film between the two sets of continuously operating toothed feeding wheels never varies, but this slack portion is intermittently fed across the exposure window. The purpose of this loop, or slack portion of film above and below the exposure window is to relieve the film from strain under the action of the intermittent feeding device and establishes, with reference to the movement of the film, substantially the same condition that would exist were the film only a few inches in length instead of being possibly a thousand feet in length, as is customary in commercial practice.

But no matter how long the film and how large the

bulk of film contained upon the supports, the total weight of film to be manipulated by the intermittent device consists always only in that slack portion which lies between the two continuously feeding devices."

Respondents have intentionally or otherwise introduced testimony by the witness Hammer purporting to show that the function of the so-called "framing device" on projecting machines is to in some way insure or facilitate the accurate registration of successive pictures in the exposure window so as to contribute to the steadiness of the projected image. This is a total misconception of the function of the framing device.

The real function of this device is disclosed by Mr. Marvin in his testimony on pages 364, 365 and 366. The precision and regularity of the presentation of successive images at the exposure window and the consequent steadiness of the projected picture upon the screen is dependent solely upon the regularity and accuracy of operation of the intermittent feeding device and upon the uniformity and regularity of the perforations in the edges of the film that contact with the teeth on the intermittent feeding device. Any variation in the feed of the intermittent feeding device will be instantly apparent on the screen, enormously magnified. This intermittent feed is really the soul of the machine upon which the merit of the entire performance rests. It is most essential that its construction and operation should be extraordinarily precise and perfect and that it should be carefully shielded from any disturbing forces and variable strains in order that its delicate mechanism and the holes in the delicate perforated film may be subjected to no fluctuating forces that inevitably produce slight but most important variations in the registry of successive pictures at the exposure window.

To confuse this essential regularity of feed with the func-

tion of the framing device is misleading and absurd. Given an uninterrupted strip of film of any length in normal condition and a normally acting projecting machine of the Latham type and the framing device would have no function whatever, and its presence or absence from the machine would in no way modify the operation of the machine and the results produced.

The framing device is an emergency device put into use only when abnormal conditions develop through imperfections of some nature and its function is then to enable the operator to restore operating conditions to normal without necessity of stopping the exhibition.

#### DEFENSE OF ESTOPPEL BY PATENT OFFICE PROCEEDINGS.

It appears that while the application for the Latham patent in suit was pending in the Patent Office, it was put in interference with the then pending application of Thomas Armat, filed Feb. 19, 1896 (which afterward resulted in patent No. 673,992 of May 14, 1901 (p. 1263) hereinabove considered) and the then pending application of Herman Casler, filed Feb. 26, 1896 (which afterward resulted in patent No. 666,495 of Jan. 22, 1901 (p. 1279), also hereinabove considered) as to the following subject-matter or issue:

(P. 1347.)

"In a picture exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture carrying strip or film, a tension device adapted to keep the film taut and prevent the flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of

motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension with great rapidity without unnecessary strain and wear upon the film."

Testimony was taken by all the parties to the interference and the interference coming on to be heard was decided, first, by the Examiner of Interferences in favor of Latham (p. 1015), then on appeal by the Board of Examiners-in-Chief, in favor of Armat (p. 1437), which last named decision was affirmed by the Commissioner of Patents (p. 1458) and again, and finally, by the Court of Appeals of the District of Columbia (p. 1469).

Each of the parties, Latham, Armat and Casler, disclosed in their respective applications many details of structure not shown by any of the others, and, therefore, subject-matter of which no interference issue could be predicated; but all of them did positively show the particular combination of elements called for by the above quoted single issue, and this it was that brought on the interference.

Without pausing to discuss, in detail, the several decisions rendered in the interference, suffice it to say, that the Court of Appeals, the ultimate tribunal appealed to, found that one of the essential elements of the issue before it, to wit, "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion" (p. 1474), while present in the structure disclosed in the Latham application, as filed, was not present in the particular structure offered in evidence by Latham to carry back his date of invention (Exhibit 12), and, therefore, awarded judgment of priority as to the matter in issue to Armat.

It is important to particularly note that in deciding the

interference in favor of Armat, the dominating consideration as indicated in the opinion of the Court was that the alleged anticipatory structure of Latham was originally used as a camera for the purpose of making motion pictures and that in the structure as so used the shutter was so proportioned as to admit light to the film for a comparatively small portion of the time only, that is, the solid part of the shutter that obscured the light during its rotation constituted much more than one-half of the total period of revolution so that while the interval of *pause* of the film in the Latham early structure exceeded the interval of movement, the interval of pause *and illumination* did not exceed the interval of movement, but was less than the interval of movement.

The Court found that Latham was unable to prove that he had operated his machine either without any shutter at all, as indicated in Armat's application, or with a shutter so proportioned that the interval of pause *and illumination* exceeded the interval of movement of the film.

Armat in his application claimed to be able to accomplish new results in projection by making the interval during which the picture was visible exceed the interval during which it was obscured. Latham's evidence did not show that he had grasped this idea or embodied it in practice, therefore the Court was compelled to decide that Armat had disclosed the first structure embodying the exact elements of the issue of the interference. The evidence that Latham's early structure, used as a camera, long anticipated Armat's first structure is conclusive, and this structure of Latham's clearly embodied all of the other elements of the issue of the interference except the element of the excess of pause *and illumination* over the interval of rest. Latham clearly proved that his structure first embodied "the combination with a picture carrying strip of film, a

tension device adapted to keep the film taut and prevent the flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement \* \* \* and mechanism for feeding the film so as to produce slack therein between the same and said tension device whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film.

Had Latham with his early machine used a properly proportioned shutter, that is, a shutter adapted for the projection of pictures rather than a shutter adapted for the making of pictures, the interference must of necessity have been decided in his favor. The evidence in the interference proceedings show that while Armat may have been entitled to credit for contributing to the art the idea that an excess of illumination of the picture improved the result, yet to Latham, as between the parties in the interference, was due the credit of first organizing a mechanism for feeding the film comprising means for uniformly feeding the film so as to produce slack therein and means for intermittently moving the slack across the exposure window with regularity and precision.

Armat's patent issued, May 14, 1901, as patent No. 673,992 (p. 1263) containing a claim (claim 2) in the identical words of the interference issue (p. 1268).

Afterwards, Latham, conceiving himself still entitled to a patent for the subject-matter contained in his application, but not shown in the Armat application, amended his application by inserting, among others, claim 7 here involved, and his patent here in suit was, on Aug. 26, 1902, duly granted.

Respondents contend that the judgment in the interference against Latham and in favor of Armat operates as an

estoppel on Latham and those claiming under him, and precludes the latter from asserting the Latham patent to be valid in this proceeding against them.

There are several conclusive answers to this contention.

(a) In the first place, inasmuch as defendants are not in privity with nor claiming title under either party to the interference judgment, they are in no position to invoke here such judgment as an estoppel, as to anything.

(b) In the second place, the matter adjudicated in the interference did not cover the subject-matter of the 7th claim here in controversy. Such subject-matter was not and could not have been adjudicated in the interference because it was not only not made an issue there, but could not, by any possibility have been made an issue there, since Armat neither made the claim nor could have claimed it, because his application did not disclose it.

An essential element of Latham's 7th claim is as we have seen :

"an intermittently-acting *rotary* feeding device also provided with *teeth* which engage the *holes* in the film, whereby the film is intermittently fed across the exposure opening."

and this element Armat's application did not disclose, as we have pointed out in discussing the Armat patent based upon such application (*ante*, p. 43).

Of course, the former judgment could, upon principle, only be pleaded as *res adjudicata* or as an estoppel, as to a matter that was or could have been put in issue in the former proceeding.

The defense of estoppel thus goes up in smoke.

## LATHAM'S DATE OF INVENTION.

Inasmuch as there is lack of identity between the Latham structure of invention as embodied in claim 7 of the patent in suit, and the structures of Armat, Joly and Gray, set up as anticipations, it would seem immaterial and unnecessary to go into the proofs as to Latham's date of invention. Such proofs show, however, that as early as February 26, 1895, Latham had made and successfully operated a machine embodying the film supporting and feeding mechanism here involved, which is earlier than any date established for Armat, Joly or Gray; Armat's earliest date being the fall of 1895 (p. 145), Joly's Aug. 26, 1895 (p. 1233), and Gray's, Mar. 9, 1895 (p. 1225).

True, such mechanism was, at that time, embodied by Latham in a camera and not in a projecting machine, but it was equally applicable to both kinds of machines without change (Marvin, X-Q. 206, *et seq.*, p. 371), it making no difference whether the mechanism was employed to feed a perforated film upon which pictures were to be taken, or a film upon which pictures had already been taken.

Recognition of this fact that a film feeding mechanism is universally regarded as such, whether present in an apparatus used as a camera or in an apparatus used as a projecting machine, is found in many of the patents set up as anticipations by the defendants in this case.

For instance, in the Edison patent No. 493,426 of March 14, 1893 (p. 1207), which is, primarily, for a projecting machine, the film feeding mechanism is described as equally applicable to a camera, as follows:

(P. 1207, lines 97 to 103):

"The means for advancing the film and for operating the shutter to expose the pictures may be the same in all particulars as in the apparatus for taking pic-

tures described in my application Serial No. 403,535, filed August 24, 1891."

Again, in the Joly patent, No. 569,875 of Oct. 20, 1896 (p. 1249), which is, primarily, for a camera or taking machine, it is stated:

(P. 1249, line 11):

"The invention relates to a chronophotographic apparatus whereby a large number of photographs, each very clear, may be taken within a given time. It may serve also as a kinetoscope."

A kinetoscope is a projecting machine.

Again, in the Marey French patent No. 231, 209 of June 29, 1893 (p. 1179), which is, primarily, for a camera or taking apparatus, the use of the mechanism for exhibiting is indicated as follows:

(P. 1190):

"The reversibility of this apparatus can easily be seen, if a strip carrying positive images, lighted from the rear, are made to pass through the focus of the objective."

Again, in the Gray patent, No. 540,545 of June 4, 1895 (p. 1227), which is for a camera, the same step-by-step film feeding apparatus described as used in the device when used as a camera is also described as used when the device is employed as a projecting machine, as follows:

(P. 1228, line 93):

"When the film has been developed and printed on a similar film for projection, the positive film is placed in the camera and illuminated by two sources of light

J J', which in the present case are electric arc lights, the light being converged by condensers as in an ordinary optical lantern. The film is drawn along by the step-by-step motion as described in the operation of taking the impressions and the projection is alternatively by direct and reflected beams."

Turning now to the specific proofs as to Latham's early work, the facts and circumstances leading up to the production of the machine that was in complete operative form and actually operated on Feb. 26, 1895, were as follows:

In the latter part of the year 1894 Mr. Latham, having secured, through the assistance of his two sons, Otway and Gray, funds for the development of his invention and plans for carrying on the business of taking and exhibiting motion pictures, leased a shop at 35 Frankfort Street, in the city of New York; purchased the necessary tools and materials, employed a skilled mechanic, Eugene Lauste, and set him to work under the immediate supervision of Otway, to construct machines for the purpose contemplated and in accordance with Mr. Latham's ideas and instructions (pp. 392, 393; and p. 519).

On the 24th of December, 1894, a second mechanic, Emil W. Kleinert, was employed and set to work to assist Lauste, who had, by that date, constructed the feed mechanism of the camera, but was using an intermittent device in it which was not proving satisfactory. It appears, however, that when Kleinert arrived at the shop on the day named, he found the camera substantially complete and satisfactory, with the exception of this feed device (p. 520; pp. 627, 628).

It further appears that when Kleinert came to the shop, Lauste and his employers were experimenting with a feed device, which had been suggested to Latham by one W. K. L. Dickson, but that it proved unsatisfactory and inadequate for the purpose, on account of its slowness and ten-

dency to impart vibrations to the film (pp. 621, 622; pp. 520, 521).

For some days after Kleinert's arrival, Latham and his assistants cast about for a better form of stop device than that suggested by Dickson, and finally decided to try a form of intermittent gear which they found illustrated in a catalogue of the Boston Gear Works, of Boston, Mass. Acting under Mr. Latham's instructions, Kleinert wrote to this company, ordering one of these gears of prescribed dimension, and such gear was furnished, as appears from the bill of the Boston Gear Works, January 7, 1895 (p. 631). Experiments with this gear led to its adoption in a slightly modified form procured from Pearce, of New York, and the machine was altered to use a film much wider than the Edison film, which was the only one then obtainable on the market. To meet the requirements of the wider film, Lauste was set to work on a punching machine for perforating the edges of the film of the width contemplated (pp. 393, 396; p. 72).

Some time in the early part of February, 1895, a quantity of the wide film, sensitized but unperforated, was ordered by Latham from the Eastman Kodak Company, of Rochester, New York, and this film was shipped to him on February 18, 1895, as appears from the bill of the Eastman Company of that date in evidence (p. 1010).

It is not necessary for present purposes to go into the details of the testimony of the numerous witnesses by which the facts above outlined are established, especially as the point vital to the matter under immediate consideration is that the camera embodying the feeding device here involved was completed and the wide film for it perforated and ready for use on February 26, 1895. On the night of that date, Otway Latham, Dickson, Lauste and Kleinert, at the shop on Frankfort Street, put the camera

to its first practical use, by taking with it a series of photographs of a swinging incandescent lamp (p. 393; pp. 446-447; p. 511; p. 624).

Some of the film after exposure in the camera was at once developed and after the experiment was concluded, Otway Latham, Dickson and Kleinert, went up to the Hotel Bartholdi, where Mr. Woodville Latham lived, and where, being indisposed on that evening, he had retired before the others arrived (p. 624; p. 511).

At the shop, after having developed a section of the film bearing the photographs of the swinging lamp, Mr. Dickson wrote a note in the following words:

"To my friend, Mr. Woodville Latham. Compliments of W. K. L. Dickson, February 26, 27, 1895, Midnight"

(P. 522; p. 447).

To this note Dickson attached a strip of the developed film, and the two were slipped under Mr. Latham's door at the hotel by Otway, together with a note written by himself, and which read as follows:

"Experiment most successful. We took a picture, machine is very fine, works beautifully. *Don't* wake us up as we did not reach the room until 3 A.M. Otway."

(P. 1043).

Dickson's note with the attached strip of film was offered in evidence as an exhibit in the Patent Office interference, entitled, *Latham vs. Casler vs. Armat*," in which the application for the patent in suit became involved in 1897, as hereinabove stated, and as is shown by the testimony in this case, after the termination of that interfer-

ence, Latham's exhibits therein were shipped to his assignees, the E. & H. T. Anthony Company and preserved for some years, when most of them were destroyed. As no trace of the note can be found, it was presumably among the exhibits destroyed.

On arising on the morning of February 27, 1895, Mr. Woodville Latham found both of the notes above referred to on the floor of his room, and at the end of Otway's, he wrote as follows:

"Slipped under my door at 3 A.M., February 27, '95, and got by me at 5.30 A.M. W. L."

(P. 1043).

Otway's note with his father's memorandum was not used as an exhibit in the interference case referred to, but remained in Mr. Latham's possession until produced by him in the former suit brought on his patent (to be hereinafter further referred to), entitled "Motion Picture Patents Company vs. Independent Moving Pictures Company of America" (p. 512).

All of the participants in this affair, except Dickson, testified in 1897, in the interference case referred to, to the facts above narrated, and the testimony of all of them, with the exception of Otway Latham, is present, under stipulation, in the case at bar, leaving no room to question the certainty of the fact that a camera was used in Latham's shop on February 27, 1895, to take a series of photographs of a swinging incandescent lamp; that said camera as then and there used was devised by Woodville Latham and that it contained film feeding mechanism identical with that of the patent in suit, as covered by the 7th claim thereof. On these points, we have the testimony of Woodville Latham, Lauste, Kleinert and Dickson, stipulated in from the record

of the former suit, and the testimony of Thomas Armat, taken in the present case (pp. 439-440; p. 453; pp. 529-530; p. 628; pp. 382-383).

The original camera, sometime after the use of it on February 26, 1895, referred to, passed out of Mr. Latham's possession, but was subsequently purchased by him and offered in the interference case as "Exhibit 12." This was one of the exhibits sent to E. & H. T. Anthony Company, after the determination of the interference, but as no trace of it can be found, notwithstanding diligent search for it, it was presumably among the machines that were some years ago scrapped. (Stevens, p. 665; Page, pp. 672, 673; Casler, p. 387, *et seq.*)

Thomas Armat, Latham's opponent in the interference case referred to, and who acted as his own attorney in the conduct of that case and cross-examined Latham and his witnesses, testified in the present case, that while the interference case was in progress he examined the Latham camera "Exhibit 12" with care and found that it corresponded to the drawings of the Latham patent (pp. 382-383). The fact that Armat, who was at the time of the interference thoroughly familiar with devices of this character and was personally interested in breaking down Latham's case, found, at that time, no discrepancies between the drawings of the Latham application and the Latham camera "Exhibit 12," leaves no doubt in the mind as to the identity and construction of the said camera "Exhibit 12." His description of the camera accords with that of Woodville Latham and of Kleinert (p. 529; p. 628).

The evidence is that after the trial and use of the camera on February 26, 1895, which, for present purposes, we may assume to be Latham's date of invention of the 7th claim in issue, the camera was put into immediate practical use. Photographs of a scene were taken early in March, 1895, and these were subsequently exhibited to the public.

An enlargement of one of these photographs was preserved by Lauste and offered in evidence as "Lauste Photograph" (p. 1071). The "New York Sun" of Monday, April 22, 1895, a clipping from which is in evidence, gives a fairly good reproduction of a picture from the same scene (p. 1049). Thereafter, on May 5, 1895, with the same camera, a fake prize fight on the roof of the Madison Square Garden was photographed on a very long film, and the extracts from the newspapers of that date, which are in evidence (pp. 1005, 1045) show that wide publicity was given to the fact. One of the original negatives, preserved as a relic by Mr. Dickson is in evidence. (See print, p. 1041.)

From the very first the machine was used commercially to produce all the pictures exhibited by the Lathams in their enterprise, and after some months additional machines containing the same feeding mechanism were built and used both for taking and projecting pictures. The application for the Latham patent was filed on June 1, 1896, a little more than a year after the first practical use of the invention.

While this machine "Exhibit 12" was built for taking pictures, the feasibility of its use as a projecting machine was appreciated and it was so used in an experimental way (Latham, pp. 515, 583, 584; Lauste, p. 424, X-Q. 240, *et seq.*; Lauste, p. 771, Q. 89, *et seq.*; Kleinert, p. 641, X-Q. 122, *et seq.*). So far as the means for supporting and feeding the film is concerned, no change was required or made when the machine was changed from a camera to a projecting machine or *vice versa*.

Lest the Court be misled by the evidence of the meager and rather unsatisfactory use of the early Latham machine as a projecting machine, it may be well to point out obvious reasons why this machine, more or less crudely constructed for the primary purpose of a camera, naturally would not give good results when used under the then existing conditions for projecting motion pictures.

It has herein before been plainly indicated that a successful projecting machine is necessarily a machine of great precision of operation, and in the Latham type of machine this precision depends for one thing upon a very nice adaptation of the spacing or pitch of the perforations in the edges of the film to the spacing or pitch of the sprocket teeth on the intermittent feeding device.

It is apparent in the first place that it is essential that the pitch of the sprocket teeth be uniform and very accurate, and in the second place that the perforations in the film be also uniform and very accurate, and it is further of absolute importance that the pitch of the holes in the film should exactly match the pitch of the sprocket teeth. If the pitch of the holes in the film is slightly greater or slightly less than the pitch of the sprocket teeth, the film will tend to ride on the teeth and the holes will be strained or torn as the film is forced down over two or more teeth of the sprocket wheel.

In modern construction the very nicest mechanical appliances and work are necessary to secure this desired accuracy. It is very unlikely that such accuracy was to be found in the first model of the machine and perforated film constructed by Latham, but assuming that Latham's camera was sufficiently well constructed to carry perforated negative film in a reasonably satisfactory manner, nevertheless, a very convincing reason why the identical sprocket wheels of this machine were not adapted to satisfactorily handle film perforated with Latham's perforating machine for projection purposes is indicated in Lauste's answer to "Q. 94" on page 771.

It should be remembered that a camera used unexposed, undeveloped film and that film shrinks greatly during the process of development, therefore, if Latham's sprocket teeth and his perforating machine for making unexposed negative film were designed to properly coact so that unexposed perforated film would run properly over his sprocket

teeth, it was almost inevitable that when this film was shrunk in development, the holes in the film being thus brought closer together would no longer perfectly fit over the sprocket teeth and the film would inevitably be strained or torn and would not be advanced to the exposure window with regular accuracy. No importance, therefore, is to be attached to the more or less imperfect results obtained by Latham in his experiments in projecting developed motion pictures in his camera mechanism. The fact that that mechanism in substantially the identical form used by Latham is at present in use in all commercial projecting machines, effectually disposes of the suggestion that the mechanism was not adapted to projecting pictures. It should be further remembered that in these experiments Latham presumably, since there is no evidence to the contrary, used the same shutter that he used with his camera, viz., a shutter having a comparatively narrow opening which would result in introducing a most objectionable flicker in the projected picture.

#### THE PREVIOUS LITIGATION ON THE PATENT IN SUIT.

The patent in suit was involved in a former suit, entitled, "Motion Picture Patents Company vs. Independent Moving Pictures Company of America," as before stated. The alleged infringing device in that suit was a camera, and the claims of the patent involved were claims 1, 3, 5 and 8. The 7th claim here in issue was not involved in that suit. His Honor, Judge Learned Hand, who heard that case, decided that, in view of the Patent Office proceedings in the interference case, the patent must be held to be limited to projecting machines, and that it could not be held to cover cameras or taking machines such as defendant in that case used. On appeal, this decision was affirmed (200 Fed., 411), His Honor, Judge Coxe, dissenting.

In the present suit the patent is being advanced as a patent for a projecting machine, and the defendants use a projecting machine, so that the former case on the only point decided therein is not controlling of this one.

There can be no question, but that the particular specific feeding mechanism that forms the subject-matter of the 7th claim, if not specifically claimed, originally, in the identical language now found in the claim, was *claimed at* in the original 6th claim, which reads as follows (p. 1338):

"6. The combination with a perforated picture bearing strip and feeding appliances therefor including a series of three toothed feed drums, of a driving shaft, gearing transmitting the motion of said shaft continuously to two of said drums, broken gearing whereby the motion of the said shaft is transmitted intermittently to the remaining drum, and appliances for insuring slacks in the film, above and below the intermediate drum, whereby each picture is momentarily brought to rest as it comes into line with the optical axis of the apparatus and the slack in the film are alternately taken up and restored."

This claim was not included in the Latham-Armat-Casler interference, for the very good reasons (1) that neither Armat nor Casler had made a corresponding claim, nor (2) had either of them a predicate for such a claim, since neither showed a structure in which there were two continuously operating toothed feeding drums engaging with the perforations of a perforated film and an intermediate intermittently operating toothed drum also engaging positively the perforations in said film.

The interference was upon an entirely different subject-matter, the single issue involved being, as quoted in the opinion of the Court of Appeals for the District of Columbia, as follows (p. 1469):

"In a picture exhibiting apparatus for giving the impression to the eye of objects in motion, the combination with a picture carrying strip or film, a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of motion, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film."

Judgment on this issue was awarded *Armat* by the Court of Appeals of the District of Columbia on January 8, 1901 (p. 1480), and afterward, to wit, on August 2, 1902, Latham's present 7th claim was introduced into his application by amendment (p. 1413), and on August 6, 1902, the application was formally allowed (p. 1415).

The 7th claim, as thus allowed and granted was within Latham's original disclosure and conformed to it, and was as we have seen, but a restatement, in narrower form, of his original 6th claim.

No just criticism, therefore, can be made of the 7th claim of Latham, on the ground that it involves a departure from the original disclosure or from the subject-matter originally claimed, nor on the ground that Latham was not entitled to it because of the judgment in the interference case in favor of *Armat*.

If *Armat* in his application had shown a film feeding device in which the intermediate intermittingly acting feeding element were a toothed feed drum having teeth which positively engage equally spaced perforations in a perforated film, it might be argued that the judgment in the interference in his favor concluded Latham, not only in respect

of the matter there actually put in issue and decided, but also in respect of any other matter, common to the Armat and Latham applications, that might have been put in issue. But there is no foundation for such an argument, since, as we have seen, Armat did not disclose such a structure and no issue between him and Latham was, therefore, possible respecting it.

While it is true, therefore, that the issue in the Patent Office interference was between Armat and Latham, respecting a projecting machine, it is not true that the judgment in the interference barred Latham from lawfully claiming, after the interference, a combination that was neither claimed, nor that could have been claimed, by Armat in his application, and that was neither put in issue, nor could have been put in issue, by Armat, in that interference.

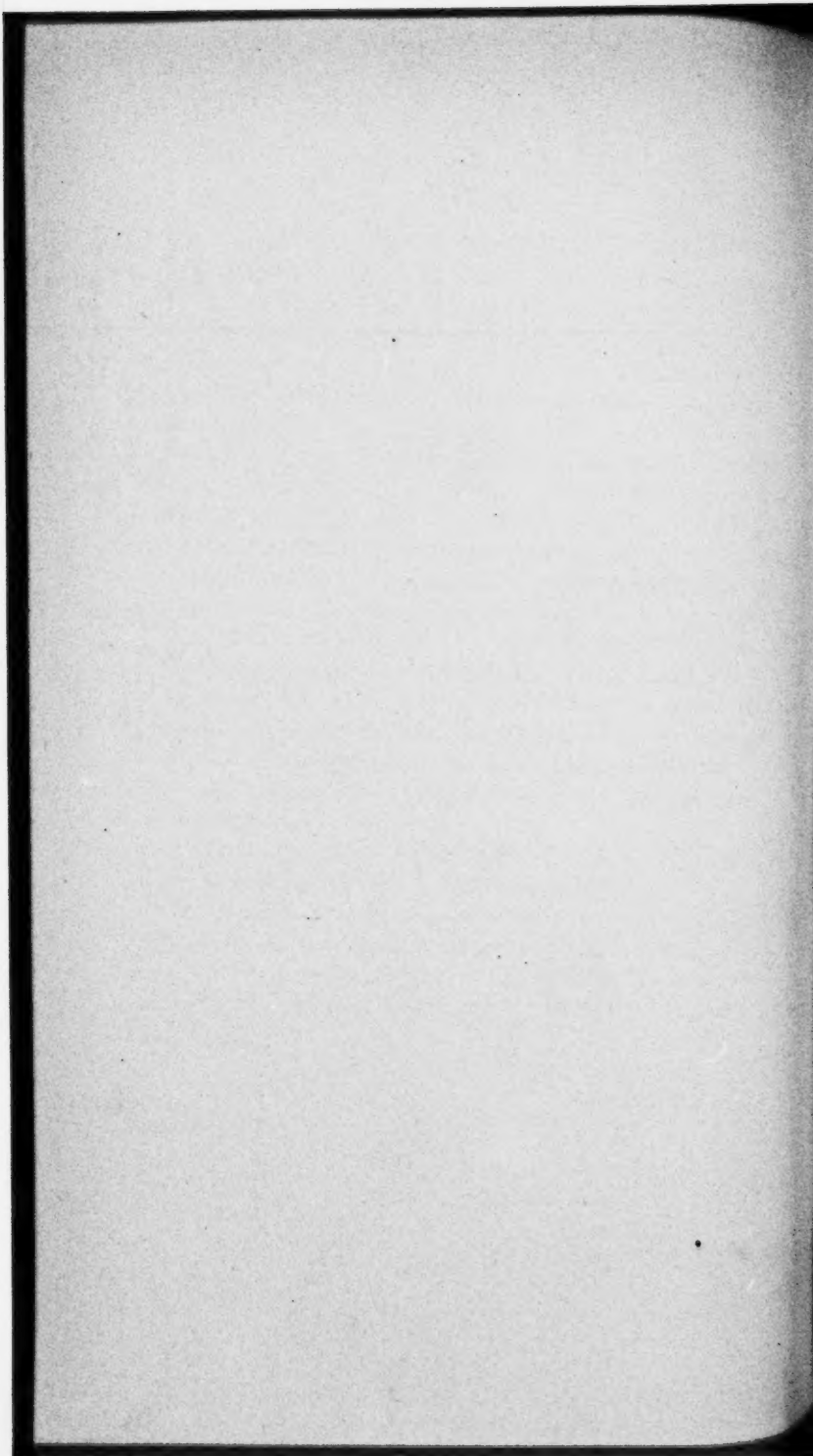
Petitioner is, we repeat, here claiming under the Latham patent as one for a projecting machine, and as not one for a camera, and it is pursuing, as infringers, those who are unlawfully using, not a camera, but a projecting machine.

The reasoning of the Court in the previous suit on this patent is, therefore, here wholly inapplicable.

The only defense passed upon by the Court below having been shown to be untenable and the other defenses being equally without merit, the decree below should be reversed and a decree directed to be entered for an injunction and an accounting.

MELVILLE CHURCH,  
*For Petitioner.*

Dec. 15, 1916.



Office Supreme Court, U. S.

FILED

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JAMES D. MAHER

CLERK

# Supreme Court of the United States.

OCTOBER TERM, 1916.

No. 715.

MOTION PICTURE PATENTS COMPANY,

*Petitioner,*

*vs.*

UNIVERSAL FILM MANUFACTURING COMPANY,  
UNIVERSAL FILM EXCHANGE and PRAGUE  
AMUSEMENT COMPANY,

*Respondents.*

On Certiorari to the Circuit Court of Appeals for the  
Second Circuit.

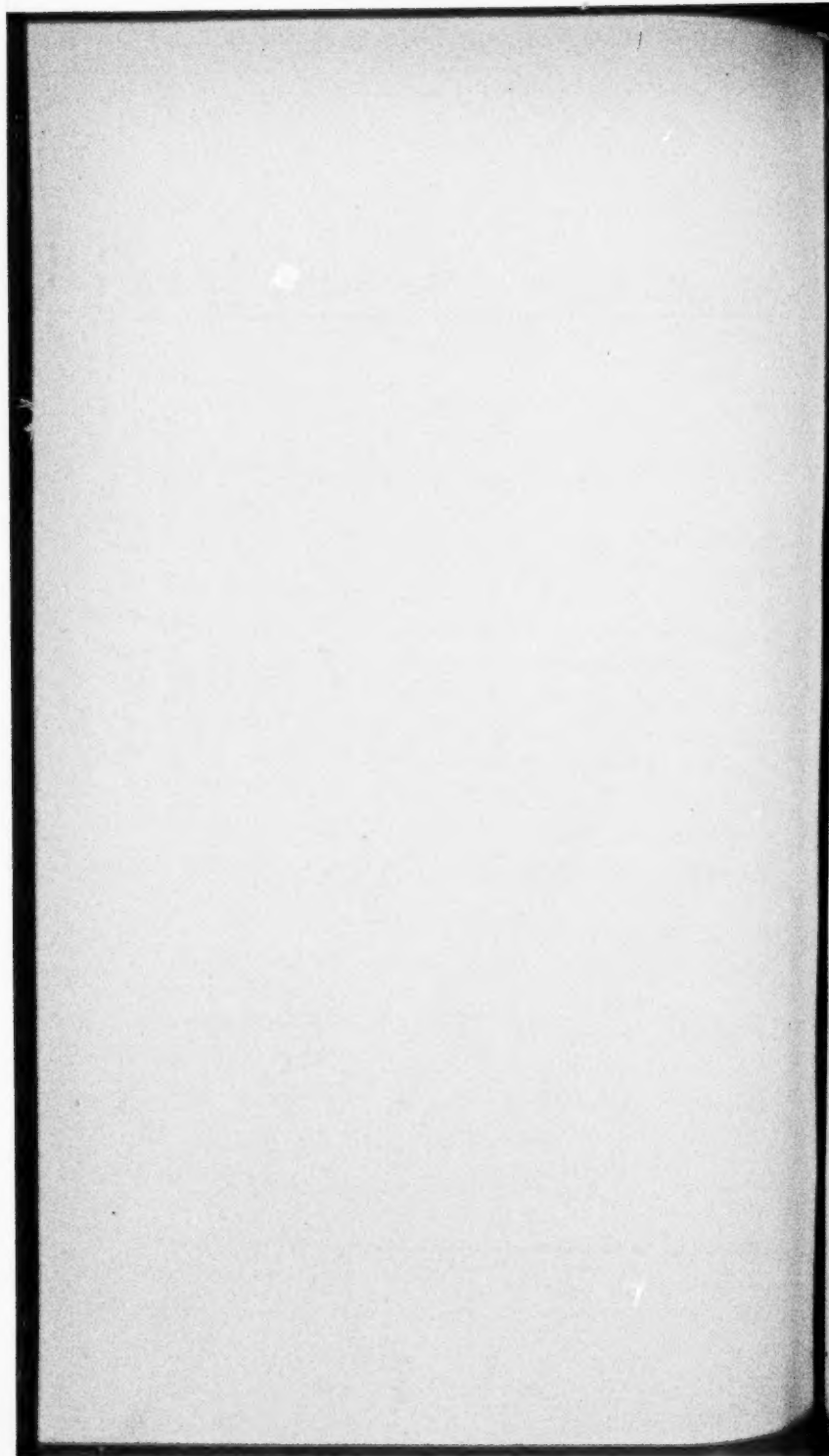
## BRIEF FOR RESPONDENTS.

OSCAR W. JEFFERY,  
EDMUND WETMORE,

*Counsel for Respondents.*

JOHN B. STANCHFIELD,

*Of Counsel.*



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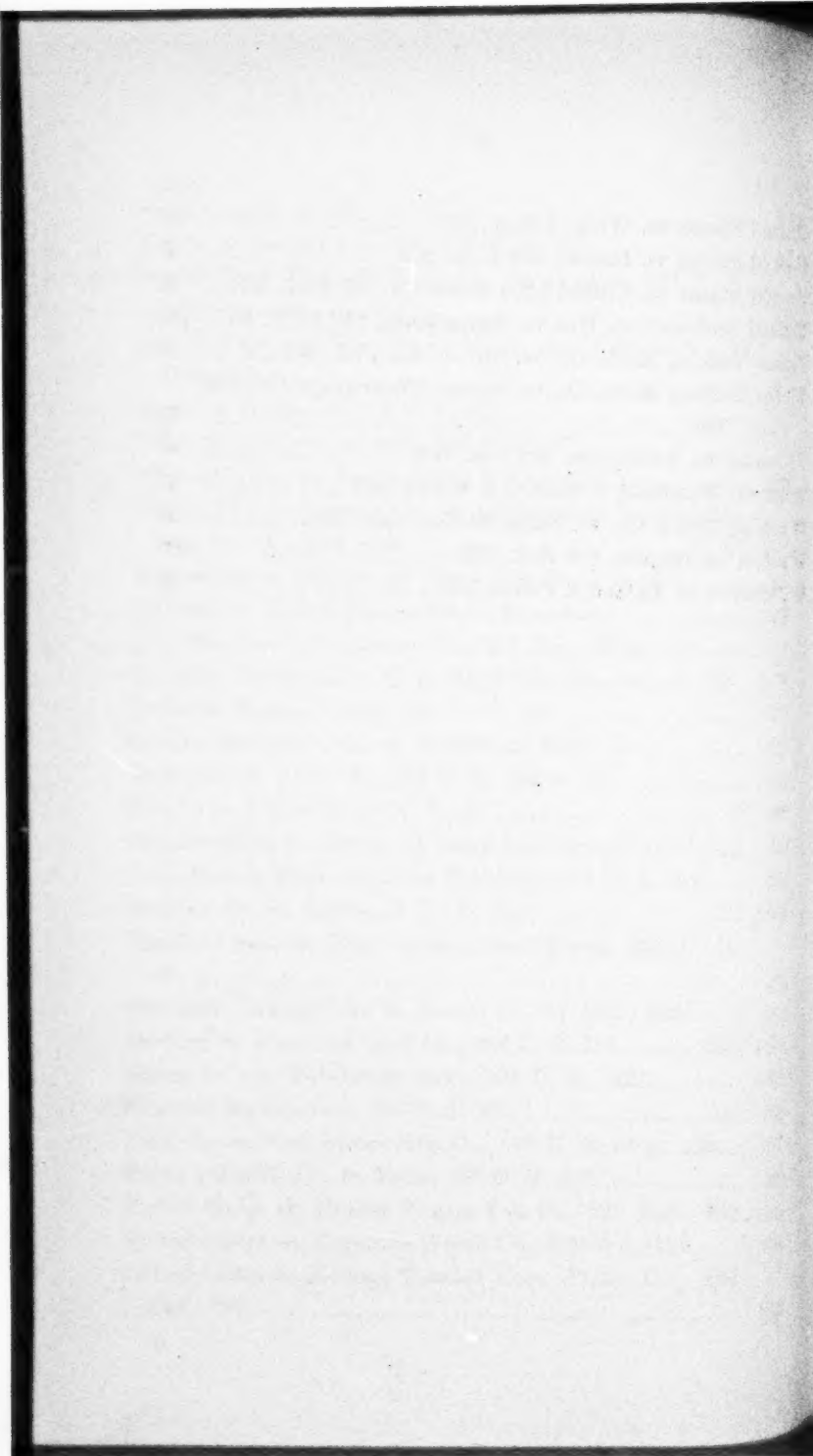
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SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1916—No. 715.

MOTION PICTURE PATENTS COMPANY,  
Petitioner,

vs.

UNIVERSAL FILM MANUFACTURING  
COMPANY, UNIVERSAL FILM EX-  
CHANGE, and PRAGUE AMUSEMENT  
COMPANY,  
Respondents.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT  
COURT OF APPEALS FOR THE SECOND CIRCUIT.

**BRIEF FOR RESPONDENTS.**

The writ of *certiorari* granted in this suit brings before this court a mandate of the United States Circuit Court of Appeals for the Second Circuit affirming a decree of the United States District Court for the Southern District of New York dismissing, after a trial on the merits, a bill of complaint (R., Vol. II., p. 1498), \* which alleged that the defendants "without the license" of the plaintiff, "jointly made, used and sold,

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\* Vol. I. contains pages 1 to 710.  
Vol. II. contains pages 711 to 1515.

and caused to be made, used and sold, and now continue jointly to make, use and sell \* \* \* motion picture apparatus which embodies the invention " of Letters Patent No. 707,934 to Woodville Latham, assignor to E. & H. T. Anthony & Company, and now owned by the plaintiff (Rec., Vol. 1, p. 5). At the trial the charge of infringement was limited to claim 7 of the patent (Vol. 1, pp. 22, 23).

The answer denied infringement and set up that the patent is invalid on various grounds which will be stated hereafter. By an amendment to the answer (Vol. 1, p. 20), the defendants admitted that the defendant, Prague Amusement Company, Inc., used a machine containing the alleged invention, but alleged that the said use of the machine was under a license from the plaintiff under said patent No. 707,934, which is for a part of the feeding mechanism used in motion picture exhibiting machines, by which a loop in the film is maintained in a manner and for purposes which will be explained hereafter. The license pleaded was an *implied*, not an express, license.

### **Statement of Facts Concerning the Alleged Infringement.**

The Petitioner, the plaintiff in the court below, owns not only the Latham patent in suit, but many other patents relating to the moving picture art. On June 20, 1912, it entered into a written agreement with the Precision Machine Company of New York City (not a party to this suit), by which it licensed the Machine Company " to manufacture " and sell motion picture exhibiting or projecting machines " embodying one or more of the inventions described and " claimed in " thirteen United States Letters Patent, including the patent in suit, throughout the United States, and for export, in consideration of royalties, consisting of five dollars on each machine of one type and three per cent. of the " net retail selling price " on machines of other types,

and other covenants and considerations contained in the agreement (R., Vol. II., p. 1074, at 1077).

One of the said covenants was that every licensed machine should be sold by the licensee under the restriction and condition that it be used solely for exhibiting or projecting motion pictures containing the inventions of Reissued Letters Patent No. 12,192 "leased by a licensee" of the Patents Company "while it owns" the said patents "and upon other terms to be fixed" by the Patents Company (pp. 1080, 1081).

The agreement further provided that the Machine Company must attach to each machine, manufactured and sold pursuant to its license, a plate showing the Letters Patent under which the said machine was licensed, including the patent in suit, and also the following notice:

**"The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine."**

Reissued patent No. 12,192 was a reissue of part of the original Edison patent No. 589,168, one of the basic patents in the art, and covered the *film universally used in motion picture machines* (R., Vol. I., p. 37, x-Qs. 32-47). It expired on August 31, 1914, subsequent to the execution of the said license agreement, and the film was from that time on open to the public to make, sell and use.

No "other terms" were ever made known to the Prague Amusement Company or the 72nd Street Amusement Company, and *none were ever fixed* so far as the record shows.

The 72nd Street Amusement Company purchased from the Precision Machine Company a moving picture machine, made under said license agreement of June 12, 1912, at some date not shown by the record (Vol I., p. 63, fol. 187). Said machine bore the notice above quoted.

On November 2, 1914, the defendant, Prague Amusement Company leased the 72nd Street Playhouse in the Borough of Manhattan, City of New York, from the 72nd Street Amusement Company, and along with the premises and equipment included in the lease was the said machine, Defendants' Exhibit 3, which at that time bore the said notice (p. 63, fols. 188, 189). This also was subsequent to the expiration of patent No. 12,192.

*Subsequent to the expiration of said patent No. 12,192*, the defendant, Universal Film Manufacturing Company, made two "pictures" or reels of film, named respectively "The Five Pound Note" and the "Refugee" (R., Vol. I., p. 38). On January 18, 1915, the Patents Company sent a letter to the 72nd Street Amusement Company of New York City informing it that it was using, without license from the Patents Company, machines embodying the inventions of the patent in suit No. 707,934, and warning them such use constituted an infringement, but no details or reasons were given in the letter. On the same day the Patents Company addressed a letter to the Universal Film Exchange of New York informing it that at a number of places, listed in the letter, motion picture machines embodying the inventions of the said patent were being used without the license of the Patents Company, and notifying the Film Exchange to cease supplying films for use on such machines. No details or facts concerning the infringement were given in the letter. For purposes

of convenience and exact information copies of said letters are reprinted below, omitting full addresses, signatures and lists.\* The letters themselves are in the record (Vol. II., pp. 745, 746).

On March 3, 1915, the Patents Company sent a letter to the defendant Universal Film Manufacturing Company informing it that, at a number of places named in the letter, including the 72nd Street Playhouse, machines embodying the invention of the patent in suit were being used without license from the Patents Company, and that the furnishing of film to the Universal Film Exchange by the Universal Film Manu-

---

" JANUARY 18, 1915.

To THE

" 72ND STREET AMUSEMENT COMPANY,  
MR. L. BOLOGNINO,

. . . . .

GENTLEMEN :

We are informed that you are using without our license at the above address one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,934 (Latham), dated August 26, 1902, owned by us. Such use constitutes an infringement of said patent and makes you liable to a suit for an injunction and an accounting of profits and damages, and we hereby notify you to desist from such infringement."

---

" JANUARY 18, 1915.

To THE

" UNIVERSAL FILM EXCHANGE OF NEW YORK,

. . . . .

GENTLEMEN :

We are informed that at the following places one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,934 (Latham), dated August 26, 1902, are being used without license from us as owners of said patent.

. . . . .  
72ND STREET PLAYHOUSE, 350 EAST 72ND STREET, NEW YORK CITY.

. . . . .  
We are informed also that you are supplying motion picture films for use on such machines and are thereby aiding and contributing to such infringing use of said machines. We hereby notify you to cease such supply; otherwise we will be obliged to enforce our rights by a suit asking for an injunction and an accounting of profits and damages."

facturing Company to be supplied by it for use on such machines was a contributory infringement of the patent, and it was notified to cease supplying film for use on said machines. The letter is reprinted below\* (see also R., Vol. II., p. 748).

Between March 4th and March 17th, 1915, the Universal Film Manufacturing Company sold to the Universal Film Exchange copies (that is, reels of film) of the pictures "The Five Pound Note" and the "Refugee" (R., Vol. I., p. 736, fol. 2207).

On March 17, 1915, the Universal Film Exchange supplied the said pictures to the defendant, Prague Amusement Company, for use upon its said machine (Defendants' Exhibit 3) and other machines, and on that date the said pictures were used by the Prague Amusement Company at the 72d Street Playhouse on the said machines (p. 736, fols. 2207, 2208). On the next day, March 18, the bill of complaint in this suit was sworn to by Mr. Marvin, the president of the plaintiff company (Vol. I., p. 9), and it was filed on or about that date.

" MARCH 3, 1915.

TO THE

" UNIVERSAL FILM MANUFACTURING COMPANY,

GENTLEMEN :

We are informed that at the following places one or more motion picture projecting machines embodying the inventions of United States Letters Patent No. 707,984 (Latham), dated August 28, 1902, are being used without license from us as owners of said patent :

72ND STREET PLAYHOUSE, 350 EAST 72ND STREET, NEW YORK CITY.

We are informed also that motion picture films for use on such machines are being supplied by the Universal Film Exchange of New York, Inc., and that you are supplying to the Universal Film Exchange of New York, Inc., the motion picture films which it is supplying for use on such machines, and you are thereby aiding and contributing to such infringing use of such machines.

We hereby notify you to cease such supply; otherwise we will be obliged to enforce our rights by a suit asking for an injunction and an accounting of profits and damages."

For convenience we insert a chronological statement of the events above set forth :

June 20, 1912, Agreement of License from Motion Picture Patents Company to Precision Machine Company.

Subsequent to June 20, 1912, patented machine, Defendants' Exhibit 2, manufactured by Precision Machine Company and sold by it to 72nd Street Amusement Company.

Aug. 31, 1914, Reissued patent No. 12,192 expired.

Subsequent to Aug. 31, 1914,, film pictures, " Five Pound Note " and " Refugee," made by Universal Film Manufacturing Company.

Oct. 15, 1914, Clayton Act effective.

Nov. 2, 1914, Patented machine Exhibit 2, leased by Prague Amusement Company from 72nd Street Amusement Company.

Jan. 18, 1915, Letter of Motion Picture Patents Company to 72nd Street Amusement Company.

Jan. 18, 1915, Letter of Motion Picture Patents Company to Universal Film Exchange.

March 3, 1915, Letter of Motion Picture Patents Company to Universal Film Manufacturing Company.

March 17, 1915, Universal Film Exchange supplied " Five Pound Note " and the " Refugee " to the Prague Amusement Company, and the same were used on the patented machine at the 72nd Street Playhouse.

March 18, 1915, Bill of Complaint.

The bill of complaint charges that the defendants "*jointly*\* made, used and sold, and caused to be made, used " and sold, and now continue jointly to make, use and sell, " and to cause to be made, used and sold, motion picture apparatus which embodies the invention or discovery described " and claimed," in the patent in suit, and plaintiff charged at the trial that the defendants committed a *joint* act of infringement in that the Universal Film Manufacturing Company made and supplied film to the Universal Film Exchange, which in turn supplied it to the Prague Amusement Company, which used it " without license " on a machine containing the invention of claim 7 of the patent in suit.

Inasmuch as the last named company obtained the machine *lawfully*, and it was *lawfully* made under the Petitioner's license to the Precision Machine Company, the Petitioner's allegation that the use of the machine was without license can be based *only* on the *violation* by the defendant, the Prague Amusement Company, of *lawful and enforceable restrictions* on the use of the machine which were clearly and distinctly made known to the Prague Amusement Company, and it is also necessary for petitioner to prove that the other two defendants *jointly* furnished the film of the pictures in question to the Prague Amusement Company *with knowledge* that the *use* of said films by the Prague Amusement Company on the said machine would be a violation of such lawful and enforceable restrictions.

All the moving picture projecting machines in the United States were licensed to be made under the Petitioner's patents (Vol. I, p. 61, Re-x-Q. 152).

The Precision Machine Company which is located in New

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\* Italics occurring in quotations have been supplied by us unless it is otherwise stated.

York City (Vol. I., p. 63, fol. 188) made and sold projecting machines manufactured by it pursuant to the said license agreement, to customers located in States outside of the State of New York (R., Vol. I., p. 65, fol. 194), and is, therefore, engaged in interstate commerce.

Judge HOUGH directed that the complaint be dismissed on the ground that "the limitation on the use of a patented article sold in the manner above set forth is invalid" (R., Vol. I, p. 696, fols. 2087, 2088). He came to this conclusion during the trial, but in order that the record on appeal might be complete, he directed the defendants to complete their proofs after the close of the plaintiff's case, which was done, such proofs consisting principally of evidence in support of the defense that the patent in suit is invalid.

Thereafter the petitioner filed a petition for rehearing, whereupon Judge HOUGH filed a written opinion, in which, after clearly and concisely stating the essential facts in the case, he held that not only is the notice of restriction invalid on the ground above stated, but also on the further ground that it is

"specifically bad in that it attempts not only to confine the use of a machine once sold and delivered to a particular kind of film, but further seeks to render that use subject to any and every restriction or regulation which the patent owner may from time to time choose to make or vary" (Vol. I., p. 697, fol. 2091).

The Circuit Court of Appeals, affirming the decree of Judge HOUGH, held that the case comes within the doctrine of *Bauer vs. O'Donnell*, 229 U. S., 1, rather than that of *Henry vs. Dick*, 224 U. S., 1, and that this is especially true since the enactment of the so-called Clayton Act (R., Vol. II., p. 1494).

The Petitioner filed a petition for rehearing in the Court of Appeals in which it was urged that the Prague Amusement Company had infringed by not complying with the condition of "other terms to be fixed," contained in the notice. The peti-

tion was denied on grounds stated in a *Per Curiam* opinion (Vol. II., p. 1511).

There is no evidence, as there was in *Henry vs. Dick*, 224 U. S., 1, that the Patents Company obtained its profit from the Latham patent from the sale of the non-patented articles adapted to be used with the patented machine, and that it made no profit on the patented machine or the patent itself. On the contrary, it appears that the plaintiff obtained a substantial royalty, to wit, five dollars per machine or three per cent. of the selling price (depending on the type of machine), and that inasmuch as all projecting machines in the United States have been made and sold under the Patents Company's license, it has obtained a large return from the patent and its other patents on the machines. The facts in this case very clearly show that the object of the Petitioner in requiring its licensees to place the notice in question on the patented machines was to levy tribute on the film used on such machines, the patent on which has expired, in addition to a substantial profit on the patent rights in the machines themselves.

Sometime prior to the filing of the bill of complaint in the case at bar, the United States brought suit against the Motion Picture Patents Company and others for violation of the Sherman Act in the United States District Court for the Eastern District of Pennsylvania. On October 1, 1915, Judge DICKINSON, on the petition, answers and proofs in that case, filed his opinion (R., Vol. II., p. 1089; 225 Fed., 800), and held, as stated therein, that the end of the combinations, contracts and arrangements made by the Patents Company and the other defendants therein was "the imposition upon the trade of an undue and unreasonable restraint, in order that, as the immediate and direct effect and result of the combination, the defendants might monopolize the trade in all the accessories of the motion picture art so far as they are articles of commerce" (R., Vol. II., p. 1107).

He also found that

"The end and purpose of the combination, and in this sense the motive or moving cause, further was, not to protect the patent rights, which the Motion Picture Patents Company was organized to take over, but the control of the patents was made a feature of the scheme in the belief, or at least the hope, that this would render the scheme (otherwise illegal) not open to the condemnation of the law" (R., Vol. II., p. 1108).

In the conclusion to his opinion he made formal finding

"that the contracts enumerated in the petition, and the combination there described, was a conspiracy in restrain of trade or commerce among the several States, and with foreign nations, and were and are illegal, and that the defendants and each of them (with the exception noted) have attempted to monopolize, and have monopolized, and have combined and conspired, among themselves and with each other, to monopolize a part of the trade or commerce among the several States and with foreign nations, consisting of the trade in films, cameras, projecting machines and other accessories of the motion picture business, as charged in the petition of complaint filed" (R., Vol. II., p. 1109).

The decree in the Government suit was entered in the Eastern District of Pennsylvania on January 24, 1916, sometime subsequent to the entering of the decree in the present case and the filing of the record on appeal therefrom in the Circuit Court of Appeals. It is, therefore, not part of the record herein, but it is before this Court (Calendar No. 461) on the appeal of the Motion Picture Patents Company and the other defendants in the Government case in Pennsylvania.

It provided that, among other contracts and matters, the agreements between the Patents Company and the manufacturers of *exhibiting machines of which the agreement between the Patents Company and the Precision Machine Company, was*

one (R., Vol. I., pp. 45, 46; x-Qs. 96-98) "were and are the means adopted and used by the defendants in order to carry into effect the objects and purposes of said unlawful combination and conspiracy" and that, "the said contracts, licenses and agreements are, therefore, hereby declared illegal, and the defendants (including the petitioner here) and all and each of them, and their officers, agents, servants and employees are enjoined and prohibited from doing anything in furtherance of such agreements and from enforcing in any manner the said agreements or any of the terms thereof."

It appears, therefore, that the Motion Picture Patents Company, in the suit at bar, is attempting to further and enforce the provisions of an agreement which by the said decree of Judge DICKINSON, it is ordered not to enforce or further, subject, it is understood, to a stay of proceedings pending the determination of the appeal to this court in that suit.

There are two main issues in this case:

FIRST. INFRINGEMENT, which was the only question considered by the Courts below and which involves the determination of the validity and enforceability of the notice of restrictions on the patented machines;

SECOND. VALIDITY of the Latham patent in suit, in case this Court considers that question in the absence of any consideration of or finding upon it in the Courts below.

It is proper to observe that although the Petition and the Petitioner's brief upon which the writ of *certiorari* in this case was granted urged that the questions of "great public concern" involved, which justified the granting of the writ, were those concerned with the right of the Petitioner to enforce the restrictions in the notice and advanced no other reasons for the Writ (Brief on Petition for *Certiorari*, pp. 29, 30), and although the Peti-

tioner moved for the advancement of the cause on the calendar on the ground that it "involves important questions of general interest in regard to the right of a patentee to impose conditions of use on the sale of a patented article," in the Petitioner's brief on this appeal twenty-three pages are devoted to the discussion of the said questions of "great public concern" and the remaining forty-seven pages to the discussion of the validity of the Latham patent in suit, which was not considered or passed upon by either of the courts below, and on which this court has not the benefit of the examination and findings on the facts, which those courts would have made had they considered that question.

If the issue first above stated is decided in favor of the Respondents, it will be unnecessary to consider the second, because, if it is held that the Respondents have—as they maintain—an implied license to use the machine free and clear of all restrictions, by virtue of its lawful purchase and possession, there could have been no infringement of the patent as alleged in the bill.

For that reason the statement of facts and the argument concerning the validity of the Latham patent is postponed to the latter part of this brief.

#### RESPONDENT'S POSITION ON THE FIRST ISSUE, INFRINGEMENT.

The Respondents maintain :

1st. That there was an absolute, unqualified sale of the machine in question and that, on the principle announced by this Court in *Bauer vs. O'Donnell*, 229 U. S., 1, and other cases, the patent owner could not restrict the use of the machine in the hands of subsequent purchasers or lessees thereof.

2nd. That, even assuming for the purpose of the argument that the Patents Company could impose conditions on the use

of the machine after its sale by the licensee, by a notice placed thereon, the restrictions in the *present* case are *specifically void* and cannot be enforced for several reasons :

(1) To restrict the use of the machine to film "licensed" under an expired patent, is an attempt to unlawfully continue the term of that patent and the statutory monopoly thereby granted.

(2) The restrictions in the notice on the patented machine are violations of Section 3 of the Act of Congress of October 15, 1914, commonly known as the Clayton Act, were part of plaintiff's attempts to monopolize the motion picture business as held by Judge DICKINSON in the Government case above referred to, and also violate the Sherman Act as well as the common law rules against monopolies and restraint of trade.

(3) The notice as to "terms to be fixed" is too vague and indefinite to be enforceable and is unreasonable.

3rd. That the Petitioner has failed to prove that the Respondents had notice of the restrictions now claimed by it to have been placed upon the use of the alleged infringing machines, and that, without such notice, its case fails.

4th. That the Petitioner has failed to prove a joint infringement of the patent in suit by the Respondents, as alleged in the bill of complaint, and for that reason its case fails.

## ARGUMENT ON THE FIRST ISSUE, INFRINGEMENT.

It is the Respondents' contention that, on the facts above stated, there is no infringement of the Latham patent in suit, but that, on the contrary, the Prague Amusement Company had a right to use the alleged infringing machine, it having acquired possession of the same lawfully; and the Universal Film Exchange and the Universal Film Manufacturing Company had a right to furnish film to the Prague Amusement Company, the patent on the said film having expired and there being no violation by the Prague Amusement Company of any other terms to which the use of the machine in the hands of the Prague Company, was subject.

THE "LICENSE" OR RIGHT TO USE THE ALLEGED INFRINGING  
MACHINE WHICH RESPONDENTS CLAIM, IS NOT WRITTEN  
OR EXPRESSED BUT IMPLIED.

The implied license is derived from the fact that the Prague Amusement Company leased the machine from the 72nd Street Amusement Company which had *bought* and *paid* for said machine, and was in both apparent and lawful *possession* thereof, with full right to dispose thereof, subject, if Petitioner is correct in its contention in that particular, only to the restrictions, if valid, mentioned in the notice contained on the plate.

That this was the license pleaded by defendants appeared also at the trial, where plaintiff's counsel asked counsel for defendants whether the defendants claimed under said license agreement, to which defendants' counsel replied that the license is "by reason of the fact that the machine was manufactured under a license" and that the defendants' "right to use it is a right dependent upon the right of every man

who buys a machine that is stamped 'licensed' " (R., Vol. I, pp. 46, 47).

Judge HOUGH pointed this out to Petitioner's Counsel at the trial as follows :

" The Prague Amusement Company has not endeavored to show that it had any license in that sense of the word ; that is, a contractual license " (R., p. 56).

The machine in question was, of course, manufactured and originally sold by authority of the said license agreement, but the fact that the Prague Amusement Company afterward leased it from the vendee of the licensee does not make it, said Prague Company, subject to the terms of that agreement. The Prague Amusement Company stands in the same position as any purchaser of a patented article, who, when he purchases it either direct from the manufacturer or from the manufacturer's vendee or licensee, has the implied right to use it.

*Bloomer vs. McEwan*, 14 How., 539.

*Henry vs. Dick*, 224 U. S., 19.

There is and can be no doubt as to the validity of an implied license. It is as potent as an express license.

*Blanchard vs. Sprague*, 1 Cliff., 288.

*Keyes vs. Eureka Min. Co.*, 158 U. S., 153.

In *Blanchard vs. Sprague* (*supra*), the suit was for infringement as here and the bill dismissed because of an implied license. Said Judge CLIFFORD :

" Notwithstanding the allegations of the bill of complaint are so framed that they charge the respondent, as an infringer of the complainant's patent, it is apparent, from the whole case, that the real controversy between the parties arises solely out of the claim to recover the additional half-cent for each article manufactured " (1 Cliff., 288, at 296).

Moreover, there can be no dispute here as to the only license in the case, *viz.*, the *implied* license. There can be no dispute that the defendant the Prague Amusement Company had a *perfect right* to use the machine, subject to the said restrictions, if valid, on the plate. There is no question as to the *validity* of that implied license *as a whole* or any allegation of estoppel on that ground, the *only* question is as to the *validity of the restrictions*. If the *restrictions* are *invalid* the plaintiff's charge of *unlawful use* falls to the ground and the bill must be dismissed. The existence of *unlawful* restrictions does not affect the defendants' right to use in other respects.

Therefore the question on this branch of the case is brought down to a single issue. Under the old form of pleading this would properly have been raised by plea. Under the new equity rules it is raised by answer, but the effect is the same, and if the restrictions are, as the defendants claim, invalid and unenforceable, the bill must be dismissed whether the point is raised by plea or answer.

This suit, though in form an infringement suit, is, in fact, nothing whatever except a suit to *enforce* the condition (Blanchard vs. Sprague, *supra*).

The question whether the defendant has infringed the Latham patent cannot properly arise until the question whether the restrictions on the plate are valid and enforceable has first been determined.

This decisive issue turns upon the validity of the restrictions. If the plaintiff has the right to enforce against the Prague Amusement Company the restriction that it cannot use its machine except with the "licensed" Edison film then it has a monopoly of enormous extent. The Edison film is used on practically all the machines for the exhibition of moving pictures in the Country. A person engaged in the business of exhibiting such pictures, if debarred from using the Edison film, is wholly shut out from that business. If he can only

use it when licensed by the plaintiff, then he is partially debarred, because the film, which has become free to the public is unobtainable, except on a condition which the plaintiff has no right to impose. The motion picture business has developed so that it extends over the whole United States, and involves capital and expenditures to the amount of many millions of dollars, and this great business will be completely under the plaintiff's control if it can enforce these restrictions.

### POINT I.

#### **THERE WAS A SALE OF THE ALLEGED INFRINGING MACHINE BY THE LICENSEE WHICH ENABLED SUBSEQUENT HOLDERS THEREOF TO USE IT FREE OF ALL RESTRICTIONS AND CONDITIONS.**

It is pointed out in the opinion below (R., Vol. 1, p. 694) that the license agreement between the plaintiff and the Precision Machine Company gave the latter the right "to manufacture and *sell*" exhibiting machines (R., Vol. II., p. 1077, fol. 3231) upon the payment of royalties of \$5 on each machine of one type, and three per cent. of the net *selling* price" on machines of other types (p. 1079); also that all the machines "sold by" the Precision Company shall bear the restrictions contained in the notice already quoted (p. 1081), and that notice itself begins with the statement "*The sale and purchase of this machine*" (p. 1081).

In other words, the plaintiff did not license the Precision Company to manufacture projecting machines to be used on terms, but to *sell* those machines at a purchase price, and in return the plaintiff received the royalties mentioned.

Not only did the license agreement with the Precision

Company contemplate, and the notice refer to, a sale of the machine, but the record shows that it was actually sold by the Precision Machine Company to the Seventy-Second Street Amusement Company, and the plaintiff so stipulated (R., Vol. I., p. 63, fol. 188). The fact, is therefore, that the article of commerce, to wit, a motion picture projecting machine, the use of which is alleged to constitute infringement in this case, was sold and the title passed unreservedly and unrestrictedly from the vendor, who thereafter had and has no claim whatever over the machine, and has never attempted to assert that it did. The vendee in turn leased it to another corporation, one of the defendants, the Prague Amusement Company, which had no relations whatever with the manufacture of the machine or with the manufacturer's licensor, but that licensor seeks to restrict the use of the machine by means of a notice of attempted restrictions as to use, which pursuant to its contract with its licensee was placed on the machine at the time it was sold by the manufacturer, the Precision Machine Company. That is the state of facts on which the Petitioner claims that it, the original licensor, has the right to restrain the defendant, the Prague Amusement Company, from the use of the machine.

It is not our purpose to argue at length the question of the right to restrict the use of patented articles by notices of restrictions placed thereon. That question has been so often argued before this court that further discussion at this time, particularly after the argument of *Victor Talking Machine Company vs. Straus*, would uselessly encumber this brief and not aid the court. We will, therefore, confine ourselves to pointing out the application of, and distinctions from, the decisions on this question which are most in point, on the facts in the present case.

In the Circuit Court of Appeals the Petitioner contended, as it contends here, that this case is to be determined by the

decision of *Henry vs. Dick*, 224 U. S., 1, and not by the later decision of *Bauer vs. O'Donnell*, 229 U. S., 1, but the court held directly to the contrary and that this case does come, as the Respondents contend, directly within the doctrine of *Bauer vs. O'Donnell* (R., Vol. II., p. 1494).

The facts in the two cases referred to differ in two important particulars.

In *Henry vs. Dick*, first, the *original* vendee, who purchased the patented machine with the notice upon it from the complainant, used upon it an article which did not conform to the restrictions, and the defendants, who supplied those articles with knowledge of the restrictions, were held liable on the ground that they were contributory infringers; second, the complainant sold its machines at cost or less, and depended upon the profit realized from the sale of non-patented articles adapted to be used with the machines and to which their use was restricted.

In *Bauer vs. O'Donnell*, first, the patented article was sold to the defendant by a *jobber*, who purchased it outright from the plaintiff or his agent; and, second, the manufacturer and vendor of the article received his full profit when he sold it.

In each of these two particulars the facts of the present case conform to those in *Bauer vs. O'Donnell*. The defendant, the Prague Amusement Company, which is alleged to be the direct infringer, is the lessee of the *vendee* of the *licenses* of the plaintiff, the owner of the patent, and the plaintiff received its full royalty or recompense on the patented article from the original licensee.

The Petitioner claims that it sought to derive most of its profit from the patent in suit by licensing the use of the patented machines by the purchasers thereof on payment of a small additional royalty while in use, but there is absolutely no proof of this fact in the record, as has already been stated.

The differences in fact between *Henry vs. Dick* and *Bauer vs. O'Donnell*, above referred to, are pointed out and empha-

sized in the opinion in the latter case. Throughout that opinion the fact that the packages of Sanatogen were purchased by the defendants, not directly from the owner of the patent or its agent, but from a jobber who had purchased them from said owner, is referred to. The question certified by the Court of Appeals of the District of Columbia in that case explicitly stated that the said packages were purchased of jobbers. The question presented for determination (229 U. S., p. 11), referring to the packages in question, contains the following :

*"such article being in the hands of a retailer by purchase from a jobber who has paid to the agent of the patentee the full price asked for the article sold."*

The opinion also points out that in *Henry vs. Dick* the patented mimeograph was sold at cost or less and the patentee depended for his profit on the sale of the non-patented articles to be used with the machine (229 U. S., p. 14). The opinion then states (p. 16) :

*"It is contended in argument that the notice in this case deals with the use of the invention, because the notice states that the package is licensed 'for sale and use at a price not less than one dollar,' that a purchase is an acceptance of the conditions, and that all rights revert to the patentee in event of violation of the restriction. But in view of the facts certified in this case, as to what took place concerning the article in question, it is a perversion of terms to call the transaction in any sense a license to use the invention. The jobber from whom the appellee purchased had previously bought, at a price which must be deemed to have been satisfactory, the packages of Sanatogen afterwards sold to the appellee. The patentee has no interest in the proceeds of the subsequent sales, no right to any royalty thereon or to participation in the profits thereof. The packages were sold with as full and complete title as any article*

could have when sold in the open market, excepting only the attempt to limit the sale or use when sold for not less than one dollar. In other words, the title transferred was full and complete with an attempt to reserve the right to fix the price at which subsequent sales could be made. There is no showing of a qualified sale *for less than value* for limited use with other articles only, as was shown in the *Dick Case*."

The above exactly states the facts in the present case, for here the licensee, who corresponds to the jobber of the Sanatogen, had obtained the right to manufacture and sell the patented article at a price which must be deemed to have been satisfactory to the licensor, and it had sold that article, to wit, the projecting machines, absolutely and unqualifiedly. As above stated "The patentee has no interest in the proceeds of the subsequent sales (so far as the licensee's vendee was concerned), no right to any royalty thereon or to participation in the profits thereof."

It is said, on plaintiff's behalf, that the restriction on the Prague Amusement Company's machine is a restriction on the use, but there seems to be no logical distinction between a restriction on the *use after a sale* by the licensee of the patented article and a restriction on the *re-sale* of it as to price or other terms. That there is *no* such distinction in the present case is shown by the notice which reads that the machine can be used only on "*terms to be fixed* by the Motion Picture Patents Company." *Non constat*, that those terms may not consist of a restriction on the *price* to be charged for the machine when re-sold or leased.

It appears clearly from the foregoing that, while the owner of a patent may make such lawful and reasonable terms as he pleases with his licensee, and the licensee is bound to observe them, the patent owner cannot, once the article is *sold by his licensee*, restrict future dealings in it. Title to the patented article has been passed and with the title all control over the

article and its use is lost. The following quotation from *Adams vs. Burke* which concludes the opinion in *Bauer vs. O'Donnell* directly applies :

" The true ground on which these decisions rest is that the sale by a person who has the full right to make, sell, and use such a machine carries with it the right to the use of that machine to the full extent to which it can be used in point of time.

" The right to manufacture, the right to sell, and the right to use are each substantive rights, and may be granted or conferred separately by the patentee.

" But, in the essential nature of things, when the patentee, or the person having his rights, sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use. The article, in the language of the court, passes without the limit of the monopoly. That is to say, the patentee or his assignee having in the act of sale received all the royalty or consideration which he claims for the use of his invention in that particular machine or instrument, it is open to the use of the purchaser without further restriction on account of the monopoly of the patentees."

*Adams vs. Burke*, 17 Wall., 453.

The distinction between *Henry vs. Dick* and *Bauer vs. O'Donnell* based on the difference between a patent owner's agreement with a licensee, for example a jobber, and an attempt to enforce a restriction in the hands of subsequent purchasers of the article which bears it, was explicitly recognized and applied by the Circuit Judges of the Third Circuit in *United States vs. Keystone Watch Co.*, 218 Fed., at 514, where the court said :

" Certain material parts of the Howard watch were covered by *bona fide* patents taken out and used for a lawful purpose, and as the owner of these patents the company had the right to make a direct agreement with

the jobbers whereby a minimum price was fixed at which the jobber might sell. *Bement v. Harrow Co.*, 186 U. S., 70, 22 Sup. Ct., 447, 46 L. Ed., 1058; *Henry v. Dick Co.*, 224 U. S., 1, 32 Sup. Ct., 364, 56 L. Ed., 645, Ann. Cas. 1913D, 880. But the company went further, and by mere notice to the retailer, accompanying the box in which the watch was sold by the jobber, attempted to fix the minimum price at which the retailer might sell to the consumer. *No direct agreement was made with the retailer. When the company sold the watch to the jobber it had fully exercised its right to vend and had no right to use the notice subsequently given in order to control the price at which the retailer might sell.* *Bauer v. O'Donnell*, 229 U. S., 1, 33 Sup. Ct., 616, 57 L. Ed. 1041, 50 L. R. A. (N. S.) 1185."

The difference in fact between *Victor Talking Machine Company vs. Straus* and the present case is that in the former the claim of the plaintiff is that title to the machine did not pass, but there was granted to the purchaser only a right to use, while in the present case there was admittedly a complete transfer of title which carried with it, by implication, the unqualified right to use. Judge LACOMBE, in the Circuit Court of Appeals opinion in the Victor case, said that the Victor Company avoided making a sale of its machine, and that it was not "a conditional or restricted sale or any sale at all."

*Victor Talking Machine Co. vs. Straus*, 230 Fed., at 452.

On the grounds stated the respondents contend that the Prague Amusement Company, having lawfully obtained the machine in question by lease from the 72nd Street Amusement Company, which had lawfully and in regular course of business purchased it from the Precision Machine Company, which had been licensed by the plaintiff to manufacture it in

consideration of royalties paid to the plaintiff, it—Prague Amusement Company—had an absolute unqualified right to use the machine without regard to any restrictions contained thereon, to the making of which it was not a party.

But without regard to the questions above discussed under Point I., the particular restrictions which the machine actually bore were unlawful, improper and unenforceable for reasons to be stated under the following point:

## **POINT II.**

### **THE ATTEMPTED RESTRICTIONS IN THIS CASE ARE UNLAWFUL, VOID AND NOT ENFORCEABLE.**

Coming to the conditions themselves, it is to be observed:

1. There is no condition or restriction binding upon the purchaser or user of a machine. *bought directly* from the Precision Company or *leased* by the *vendee* of that company, *except* the restrictions contained in the *notice on the plate*.
2. Those restrictions will not be upheld if they are *against statute* or *public policy* or so *ambiguous* or *inequitable* that equity will not enforce them.
3. The right of the patentee to impose any conditions he chooses upon the exclusive right to use conferred by the patent, is not absolutely unbounded so that, although the conditions are such that their acceptance would affect the public interest, any one desiring to use the invention must use it under the obnoxious terms or not at all. To give such effect to the restriction would make it the means of offering a *consideration* to those who desired to accept it to enter into an *unlawful* contract. Nor is it any answer to this

to say that it is a case in which the law will help neither party. The question is not between the *parties* to the contract alone but between the *patentee* and the *public*.

### **FIRST.**

**The attempted restriction to film licensed under reissued Patent No. 12,192, is an attempt to continue the monopoly of an expired patent, and is therefore contrary to public policy and void.**

At the time (June 20, 1912) of the making of the agreement between the Motion Picture Patents Company and the Precision Machine Company, pursuant to which this notice was placed on the machine, the said reissued patent No. 12,192 had not expired, and only persons licensed by the Motion Picture Patents Company could lawfully make, sell or use film containing the invention of that patent. It expired on August 31st, 1914 (R., p. 34).

The notice limits the machine to use with film made under the reissued patent No. 12,192. The only film described is film "containing the invention" of said patent. The notice conveys to the ordinary purchaser the idea that he must use the machine with film covered by a patent owned by the plaintiff which film he can obtain from those who are licensed to sell it *under that patent*.

Petitioner states in its brief that the restriction confining the right to use the machine "with moving pictures containing the invention of re-issued patent No. 12,192 leased by a licensee of the Motion Picture Patents Company, the owner of the above patents, and reissued patent, while it owned said patents", was only for the purpose of describing the film, *although that exact form of notice was drawn two years before that patent expired*; and it also contends that

"licensee" in the notice means one of a number of concerns which are regarded by it as "licensees" under its patents.

But that is not what the notice states. To place that meaning upon it is to make it obscure. What does the word "licensee" mean if not a "licensee" under patent No. 12,192? How is the owner of a machine to ascertain who are the "licensees" who may furnish him with this film? Unless the notice is given the meaning that "licensee" means a licensee under patent No. 12,192 it conveys no information by which the reader may know what kind of a license is referred to. It is like one of the Roman decrees that were purposely hung so high that the people could not clearly see what was forbidden.

The so-called description in the part of the notice above quoted limits the film to one that would have been an infringement of the patent if used without the consent of the owner thereof while the patent was in existence and became public property when the patent expired.

Mr. Marvin, plaintiff's president, says, with reference to the license, "I think what it did do was license users of projecting machines to use *licensed film so long as the film was covered by the patent owned by the Patents Company*" (R., p. 61, Re-x-Q. 154).

The corollary of this is that when that patent expires he has the right to use film purchased from any one he chooses, for the public generally may make and sell that film, but if he is compelled to buy it only from persons who are licensees of the plaintiff under other patents, then the expiration of the patent avails him nothing, in which case plaintiff continues its monopoly of the patented film, and the Government has received no consideration for its grant of a seventeen year monopoly.

To impose as a condition of using the Latham patent that

it shall only be used with films made in accordance with the Edison patent even *after* the expiration of said last named patent and sold by a licensee of the plaintiff *after* the power to grant a license thereunder had ceased to exist, is simply to *extend the term* of the Edison patent beyond the period allowed by law. It is not the same as if the Edison film had never been patented at all, because the *consideration* for granting the Edison patent and the *condition* on which it was granted was that the Edison film which was the subject of that patent, should become public property when the patent expired, and it is a most substantial invasion of that right of property if it cannot be used in a machine for which it is primarily adapted unless it is furnished by a particular class of makers or dealers, viz: the plaintiff's licensees. It will be noted that in *Dick vs. Henry* the ink and other supplies furnished by the plaintiff in that case were none of them patented, or, so far as the record showed, ever had been.

An article once covered by a patent which has expired, differs from an article which has never been patented at all, in this respect. The *unpatented* article is *free to the public* to make, use or sell, subject only to the ordinary rights of private ownership. If the owner wishes to maintain a *monopoly* in the manufacture or use of such article, the only way to do so, is to keep the method of manufacture or the way to use it a secret. But if the article is patented, the patentee has an *exclusive statutory* right to make, use and sell the same for seventeen years on the *condition* that the same shall be absolutely free to the public at the end of that period. That transaction constitutes a *contract* between the *public* and the *inventor*, of which the free public use is the consideration, and any act, the object and effect of which is to impede or abridge that free use, is against public policy and void, even though the same act might be perfectly lawful if no patent had ever been granted.

" It (the Patent Statute) was passed for the purpose of encouraging useful invention and promoting new and useful improvements by the protection and stimulation thereby given to inventive genius, and was intended to secure to the public, after the lapse of the exclusive privileges granted, the benefit of such inventions and improvements."

*Bauer vs. O'Donnell*, 229 U. S., 10.

**SUCH A MONOPOLY IS UNLAWFUL AND VIOLATES THE SHERMAN ACT.**

The film in question, which contains the invention of re-issued Letters Patent No. 12,192 is shown by Complainant's Exhibit F, which Mr. Marvin testifies is a specimen of the film intended for use in the defendant's machine. As described by him it is a "flexible transparent, or translucent film having equally spaced perforations along its edges and having upon it a series of sharply defined equi-distant photographs of different phases of a moving object as observed from a single point of view" (R., p. 32). This particular film has been universally used in the motion picture business both before and since the expiration of the reissued patent (R., p. 37, x-Qs. 42-47). No projecting machines are manufactured except under license from the Motion Picture Patents Company (R., p. 61, Re-x-Q. 152). It is therefore clear that the purpose of this restriction and its result, if it can be enforced, will be to give the plaintiff a monopoly in the sale of the only kind of film which is used on projecting machines, that is to say, it can impose such terms as it pleases on the manufacture and sale of all film used in the motion picture business of the United States.

The Circuit Court of Appeals found as a fact that

"the testimony shows that the complainant has a monopoly under its patents of projecting machines so

that if no films not manufactured by complainant can be used upon these machines, the complainant will obtain an absolute monopoly of the film business in spite of the fact that its patent on films has expired " (R., Vol. II, p. 1495).

A monopoly of this character is a clear violation of the Anti-Trust Law of 1890, otherwise termed the Sherman Act.

As Judge DICKINSON said in his opinion in the suit of the Government against the plaintiff under the Sherman Act " it is evident that whoever controls the films referred to controls the motion picture business " (R., Vol. II., p. 1093, fol. 3278).

The restriction that the Precision machine shall only be used with the designated Edison film is not essential or necessarily incidental to the use of the Latham patent in suit. Therefore it is not an exercise of the exclusive right to use conferred by the patent.

It is clear, therefore, that the plaintiff is endeavoring to use the restriction to obtain an unlawful monopoly. Efforts of the same kind have already been condemned by this Court in numerous cases.

" Rights conferred by patents are indeed very definite and extensive, but they do not give any more than other rights an universal license against positive prohibitions. The Sherman Law is a limitation of rights, rights which may be pushed to evil consequences and therefore restrained."

*Standard Sanitary Mfg. Co. vs. United States*, 226 U. S., 49.

*Miles Medical Co. vs. Park*, 220 U. S., 373, at 406.

*Straus vs. Am. Publishers' Ass'n.*, 231 U. S., 222 at 234.

*United States vs. Kellogg Toasted Corn Flake Co.*, 222 Fed. Rep., 725 at 731.

**SECOND.**

**The attempted restrictions are contrary to the Act of Congress of October 15, 1914, known as the Clayton Act, and are therefore not enforceable.**

The license agreement of June 20, 1912, to the Precision Machine Company, granted that company "the right and license for the United States, its territories and possessions, to manufacture and sell motion picture exhibiting or projecting machines embodying one or more of the inventions described" in thirteen Letters Patent named in the agreement, including the Latham patent in suit. The licensee agreed to pay five dollars per machine royalty on one type of machine and three per cent. of the net selling price on other types. The agreement contemplated both foreign and interstate commerce (R., Vol. II., p. 1074-1088), and the Precision Machine Company sold its projecting machines in interstate commerce (R., Vol. I., p. 65, fol. 194).

It does not appear when the particular machine in question was sold by the Precision Machine Company to the 72nd Street Amusement Company, but it was leased by the 72nd Street Amusement Company along with the rest of the equipment of the 72nd Street Playhouse to the Prague Amusement Company on November 2d, 1914, subsequent to the taking effect of the Clayton Act.

The record shows that the Motion Picture Patents Company licensed the projecting machine manufacturers in the United States and a number of film manufacturing concerns under its reissued Letters Patent No. 12,192, the latter under the condition that the films so licensed should be used only on exhibiting or projecting machines licensed by the Motion Picture Patents Company under its patents (R., Vol. II., pp. 1076, 1077, fols. 3228, 3229), and it collected royalties from its licensees. But there is no evidence that the *only* business

of the company was the granting of licenses. The record does not show whether it did any other business or not. It does appear clearly, however, that it granted patent licenses to and received royalties from both the manufacturers of exhibiting machines and the producers of motion pictures throughout the United States (see License Agreement above referred to, R., p. 1074).

That the effect of the conditions on the sale of the machines made by the Precision Machine Company is to substantially lessen competition and that they tend to create a monopoly, is sufficiently obvious from the fact that, if in the business of the Universal Film Manufacturing Company or the Universal Film Exchange, they are unable to supply the Edison film to their customers, their competition with the Petitioner or its licensees will not only be lessened but destroyed, and the Petitioner will be enabled to create a monopoly of vast extent, because it can levy tribute upon every manufacturer and seller of motion pictures, although the film on which those pictures are taken is open to the world.

That the object of the agreements of the Petitioner with the Manufacturers of projecting machines was to obtain a monopoly and substantially lessen competition was held by Judge DICKINSON in the suit of the Government against it. We fail to find in the Petitioner's brief on this appeal any denial of the fact that the conditions in those agreements did actually tend to monopoly and lessen competition.

Section 3 of the Clayton Act provides :

"That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or resale within the United States or any Territory thereof \* \* \* on the condition, agreement, or

understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce."

It appears from the terms of the Statute, above quoted, that its purpose is to prevent the placing of conditions on the sale of commodities of all kinds which will prevent or restrict competition and tend to create a monopoly.

The Act was directly aimed at the so-called "tying" contracts, which oblige a dealer to surrender his right to handle the goods of any manufacturer he sees fit to deal with. This clearly appears from the Report of the Committee on the Judiciary of the House of Representatives of May 6, 1914 (page 11), which accompanied the bill reported to Congress by that Committee, and which was, with some modifications, enacted by Congress into the Statute now under consideration. Reference to it is justified (*McLean vs. United States*, 226 U. S., at 380).

That Report also shows that the monopolization of the *moving picture* business by means of such "tying" contracts, one of which is under consideration in this case, was one of the specific evils the statute was designed to remedy. The Report above referred to contains the following at page 13 :

"Where the concern making these contracts is already great and powerful, such as the United Shoe Machinery Co., the American Tobacco Co., and the *General Film Co.*, the exclusive or 'tying' contracts made with local dealers become one of the greatest agencies and instrumentalities of monopoly ever devised by the brain of man. \* \* \*

"The *General Film Co.*, by the same method practiced by the Shoe Machinery Co. under the lease system,

has practically destroyed all competition and acquired a virtual monopoly of all films manufactured and sold in the United States. When we consider contracts of sales, made under this system, the result to the consumer, the general public, and the local dealer and his business is even worse than under the lease system."

Report No. 627 of House Committee on Judiciary,  
Page 13.

It is true that the General Film Company is a corporation distinct from the Motion Picture Patents Company, but it was one of the defendants in the suit brought against the Motion Picture Patents Company, and is referred to by Judge DICKINSON in his opinion as part of the film monopoly to further which both it and the Petitioner were organized.

R., Vol. II., p. 1103, fol. 3309.

Without such "tying" agreements as the one between the Petitioner and the Precision Machine Company, the General Film Company and the Petitioner would not have been able to accomplish that monopoly.

It is clear that the purpose of the Act, as gathered from its terms and from the declarations of its framers, is to prohibit the restraint of trade by preventing limitations and restrictions on the sales of commodities, which limitations and restrictions prevent the purchasers of those commodities from freely dealing in the products of all manufacturers, and it is equally clear that such was the purpose and result of the restrictions placed upon the machine involved in the present case, as was held by the Circuit Court of Appeals, as follows:

"The testimony shows that the complainant has a monopoly under its patents of projecting machines so that if no films not manufactured by complainant can be used upon these machines, the complainant will obtain an absolute monopoly of the film business in spite of the fact that its patent on films has expired.

" If the prohibitions of the Clayton Act mean anything at all, this case falls within them and the restrictions as to the use of films other than complainant's with the projecting machines are, therefore, void. Indeed, the Report of the Judiciary Committee of the House concerning the Clayton Act shows that its purpose is to reach the film monopoly."

R., Vol. II., p. 1495.

The Petitioner does not deny that the intent of the Statute is to prevent conditions of the character imposed by the Petitioner, and that the purpose of those restrictions and their result, if enforced, is to accomplish the very purpose which the statute aims to prevent, but it maintains that the statute does not apply for two technical reasons: First, because the Motion Picture Patents Company is not "engaged in commerce" and did not make the agreement with the Precision Machine Company "in the course of such commerce", and, Second, because it is not a "competitor" of the concerns from whom the supplies, viz., the films used on the projecting machines, could be obtained.

Thus the Petitioner endeavors to take advantage of what it asserts to be the letter of the statute in order to evade it and at the same time continue a monopoly which comes directly within the spirit of the Act by means which the framers of the Act intended it should prevent.

The argument on which the Petitioner seeks to escape the prohibition of the statute is exceedingly technical and amounts to this: that although the Petitioner grants licenses to the projecting machine manufacturers of the United States and collects royalties from them, and although it has, as the record shows, sought to control and has in fact *controlled* commerce in projecting machines, in films and in other articles used in the motion picture art, it is nevertheless not "*engaged in*" the motion picture business, or, in the words of the

statute in "commerce," and that although it enables its licensees to compete with those engaged in the manufacture and sale of supplies for projecting machines, and they can not obtain those supplies without its permission (according to the Petitioner's contention), nevertheless it is not a "competitor" in the sense in which that word is used in the statute.

If these contentions are correct, any owner of a patent who desires to place restrictions on the use of his patented article may avoid the law merely by the subterfuge of having the patent held by a person or corporation which grants licenses under the patent subject to restrictions, but does not make, sell or use the patented article; a conclusion which would render the statute ineffective for the purposes intended, and leads to an absurdity, for it is absurd to say that the framers of the Act intended to create exceptions which would defeat its object.

This court has held that patent license agreements are a part of commerce.

"We think the licenses do by their terms and by their plain meaning refer to, *include and provide for interstate as well as other commerce.* \* \* \* The contracts plainly look to the sale and they also determine the price of the article sold, throughout the United States, as well as to the manufacture in the State of Michigan."

*Bement vs. National Harrow Co.*, 186 U. S., at p. 92.

In the present case the license agreement made by the plaintiff recites that the licensor has granted licenses to lease motion picture film under its reissued patent in the United States, its territories and possessions (R., Vol. II., p. 1076, 1077), and grants to the licensee a license to manufacture and sell projecting machines in the United States, its territories and possessions (p. 1077, fol. 3231). It provides that the licensee shall not sell its machines at less than \$150 (R., Vol.

II., p. 1084, fol. 3251); and the licensee will neither make nor sell repair parts for projecting machines manufactured or sold by any other licensees of the Petitioner (R., Vol. II., p. 1088, fol. 3248).

Speaking of the Petitioner's agreements, among which were those similar to the agreement with the Precision Machine Company, Judge DICKINSON said that their end and result "was the restraint of trade" (R., Vol. II, p. 1101, fol. 3302), that the immediate result of the acts of the defendants (including the Petitioner) was that they "might monopolize the trade in all the accessories of the motion picture art so far as they are articles of commerce"; that the further end proposed and largely achieved was "the *domination* of the motion picture business itself" (fol. 3320); that the restraint was

"not merely incidental to efforts to protect the rights, "granted by the patents, but went far beyond the fair "and normal possible scope of any efforts to protect "such rights, and that as a direct and intended result "of such undue and unreasonable restrictions, the "*defendants have monopolized a large part of the inter- "state trade and commerce* in films, cameras, projecting machines and other articles of commerce, "accessory to the motion picture business" (R., Vol. II, p. 1108, fols. 3321-3322).

Judge DICKINSON's formal finding was that the contracts enumerated in the petition (among which were the contracts with the projecting machine manufacturers) and the combination "was a conspiracy in restraint of trade or commerce", and that the defendants and *each of them* have attempted to monopolize a part of the trade or commerce among the several States, consisting of the trade in films, cameras, etc. (pp. 1108, 1109).

To say that a corporation which has *participated* in commerce in the manner and to the extent indicated in the above extracts from the license agreement and Judge DICKINSON's opinion, is not "*engaged in*" commerce is little less than

absurd. Certainly the Clayton Act contemplated no such distinction as that which the Petitioner here attempts to make between restraining, controlling and participating in commerce and "engaged" in commerce.

The fact is, that the Petitioner in the course of its acts by which it controlled or sought to control commerce in machines, films and all apparatus and supplies used in the motion picture art, made a contract providing for the sale of motion picture machines in interstate and foreign commerce, on the condition that the purchasers thereof should not use, on said machines, supplies, to-wit, films universally employed in the business, furnished by the Universal Film Manufacturing Company or any concerns which did not see fit to take some kind of a "license" from the Petitioner. Every sale of film by a concern not a licensee of the Petitioner, directly diminished its profits and interfered with its business, but, notwithstanding this, the Petitioner asserts that those concerns were not engaged in competition with it.

Under well established rules of statutory construction, the Petitioner cannot escape the effect of the statute by the very literal meaning which it seeks to give to the terms thereof.

It is a universal rule long and frequently applied in this court, that in the construction of statutes the intention and purpose of the legislature is to be ascertained and followed, that the literal meaning of terms and phrases employed must yield to that intention, and that any construction which leads to the defeat of that intention or to absurd consequences will be discarded.

*United States vs. Winn*, 3 Sum., 211, 212.

*Wilkinson vs. Leland*, 2 Peters, 238.

*Oates vs. National Bank*, 100 U. S. at 244.

*United States vs. Lacher*, 134 U. S., 268.

*Holy Trinity Church vs. United States*, 143 U. S. at 460.

*Sweetser vs. Emerson*, 236 Fed., 161.

*People vs. Lacombe*, 99 N. Y. at p. 49.

In the last cited case it is said :

"Where it is apparent that a strict construction of a statute would defeat the main purpose and object, not only of the statute, but of other legislative enactments which relate to the same subject, and which have been enacted in pursuance of and according to a general purpose of accomplishing a particular result, such interpretation should not be upheld, as it would be absurd to say that the law-makers designed to secure a result which would be antagonistic to their plain and clear intention.

*People vs. Lacombe*, 99 N. Y., at p. 50.

The Petitioner attempts to give to the words "trade" and "commerce" as used in the Clayton Act, the meaning of actual barter, sale and interchange of goods, but, according to the Century Dictionary, "commerce" also means traffic, mutual dealings in common life, intercourse in general, commercial transactions. "Business" is a synonym. The verb "commerce" means "to traffic," "to carry on trade" (Century Dictionary). Can it be doubted that the making of the Petitioner's license agreements was trade or commercial intercourse, or that it was not an active engagement in traffic and commercial transactions among the states of the United States? The Act itself in its first section defines commerce as trade.

It is not denied by the Petitioner that the *Precision Machine Company*, which placed the notice of the attempted restriction on the patented machines, is engaged in interstate commerce, but it is asserted (Petitioner's brief, p. 15) that it does not make or sell motion picture films, and that therefore it is not a competitor of those who deal in such articles. But under the liberal interpretation of the terms of the statute to which it is entitled, the Precision Machine Company *was* engaged in competition. It was endeavoring, when it placed the notice in question on the machine, to restrict the trade of

some manufacturers and dealers in films, and therefore was endeavoring to prevent those competitors from dealing in the articles which must be used on the machines which it sold.

Therefore, whether or not the Motion Picture Patents Company is engaged in commerce, the Clayton Act applies, because the *Precision Machine Company*, which concededly was engaged in commerce, violated the statute by leasing or making a sale of goods, wares and merchandise, to wit, the projecting machine, on the condition that the purchaser should not deal in the goods, wares or supplies of a competitor.

Other objections to the Act suggested in the Petitioner's Argument will be briefly referred to.

1. THE CLAYTON ACT APPLIES EVEN THOUGH THE AGREEMENT, PURSUANT TO WHICH NOTICE WAS PLACED UPON THE MACHINE, WAS MADE PRIOR TO THE PASSAGE OF THE STATUTE.

"As the contract in question would have been illegal if made after the passage of the commerce act, it cannot now be enforced against the railroad company, even though valid when made."

*Louisville & Nashville R. R. Co. vs. Mottley*, 219 U. S., 467 at 485.

This principle was applied to the Clayton Act by Judge SESSIONS in *Elliott Machine Co. vs. Center*, 227 Fed., 126. In support of his ruling he cited, in addition to the Louisville & Nashville case above referred to, the following :

*Armour Packing Co. vs. United States*, 209 U. S., 56 ;  
*Phil., Balt. & Wash. R. R. vs. Schubert*, 224 U. S., 603,

and a number of other cases in this court and the Circuit Courts of Appeal, which the Court below held justified his opinion (R., Vol. II, p. 1496).

Judge DYER in the Eastern District of Missouri reached the same conclusion in *United States vs. United Shoe Machinery Company*, 227 Fed., 507.

2. THE CLAYTON ACT APPLIES TO THE RESTRICTION AS TO "TERMS TO BE FIXED" AS WELL AS TO THE RESTRICTION ON THE FILM.

It is contended by the Petitioner (Brief, pp. 15-17) that the license restriction in question may be divided into two parts, the first relating to the film to be used on the machine, and the second to other "terms to be fixed." Whether or not the condition may be thus separated, the Clayton Act directly applies to both, for the reason that the restriction to "terms to be fixed" enabled Petitioner to make terms which came directly within the prohibition of the statute. Those terms might be further restrictions on the persons from whom the films might be obtained, or to whom they might be sold, or any other terms which the Petitioner saw fit to enforce.

The Petitioner contends that the further "terms to be fixed" would have been, if the Prague Amusement Company had inquired of the Petitioner, only a royalty for use. This assertion occurs several times in Petitioner's brief, and appears to be based on the provision in the agreement between the Petitioner and the *Precision Machine Company* that the further terms would be a royalty. The *notice on the machine*, however, did *not* so state. There is not a scintilla of evidence in the record that the Prague Amusement Company was ever notified that a royalty was required or that terms of any kind had been fixed on the use of the machine in addition to the restriction as to film.

Inasmuch, therefore, as the *notice on the machine* of terms to be fixed enabled the Petitioner to make terms in violation of the Clayton Act, that clause, whether separable from the rest of the notice or not, is unlawful.

RESPONDENTS HAVE THE RIGHT TO INVOKE THE CLAYTON ACT.

The contract or "license" by virtue of which the Prague Company has the right to use its machine is an *implied* contract, implied from the fact that it lawfully obtained the ma-

chine. The fact that the agreement, by authority of which the said machine was made and sold, contained provisions which violate the law, and that those conditions are stated on the machine does not prevent the defendants from availing themselves of the protection of the statute which was designed to prohibit just such monopolies as that which the plaintiff is endeavoring in this suit to obtain.

*Oregon Navigation Co. vs. Winsor*, 20 Wall., 70.

Nor is it in the interest of the defendants alone which is to be regarded. The public must be considered and its interests protected.

*Continental Wall Paper Co. vs. Voight & Sons Co.*,  
212 U. S., at p. 262.

It is not necessary to plead the illegality.

*Oscanyan vs. Arms Co.*, 103 U. S., 261, 267.

### **THIRD.**

**The attempted restriction that the machine is to be used on terms "to be fixed" by the Motion Picture Patents Company is not enforceable, irrespective of the Clayton act.**

The petitioner contends that the condition of "other terms to be fixed" is one which the defendant, the Prague Amusement Company, was bound to observe, although no terms on the use of the machine were ever fixed by the Patents Company so far as the record shows.

It is stated in the Petitioner's brief that the so-called "second" condition in the notice is that the user is to pay to the Petitioner a royalty or rental (to be fixed by Petitioner) while the machine is in use but there

is no proof whatever that the Prague Amusement Company was ever notified or learned of the condition that it must pay a royalty to the Petitioner or that any royalties were ever fixed or disclosed by Petitioner. The "terms to be fixed" by the Petitioner might have been any terms which it desired to impose at any time while the machine was in use, and they might vary from time to time. They might be the fixing of a re-sale price on the machine, or the price at which it might be rented for exhibition purposes, or any similar restriction, and such restrictions would come directly within the rule of *Bauer vs. O'Donnell, supra*, and be void on that account.

Not only that, but, if the Petitioner may enforce the notice on the theory it now advances, it may compel a purchaser of the machine to inquire from day to day as to the terms on which he can use it. Even assuming that those terms are confined to the requirement of royalties, the Petitioner might demand fifty cents royalty one day and raise it to one dollar for the next day, and according to its position here, the purchaser would be bound to ascertain before he used the machine whether the conditions had been changed.

Judge HUGH found on this point that this "attempted reservation" seeks to render the use of the machine "subject to any and every restriction or regulation which the patent owner may from time to time choose to make or vary" (*R.*, Vol. I., p. 697, fol. 2091).

The Court of Appeals, after consideration of the petition for reargument filed by the Petitioner, said :

"The clause 'upon other terms to be fixed' in no way specified the nature of these terms and in particular in no way mentioned a continuing royalty, or the amount thereof. There is no evidence, however, that any 'other terms' were ever fixed or demanded (a finding of fact). We think such a vague condition insufficient to limit the implied right of user passing to the vendee of the machine, and consequently unenforceable.

\* \* \* If the terms that were customary had been known, there was nothing in the notice or elsewhere to prevent the appellant from varying the royalty as to nature or amount. Such a condition is too indefinite for enforcement, though a notice of a precise amount to be paid might be perfectly good. The notice fixed to the machine was so broad as to allow the patentee to fix any terms he might choose and to be repugnant to all rights which the owner of the machine might have obtained by his purchase and implied license" (R., Vol. II., p. 1511).

The Courts below made the findings of fact and law above quoted after careful consideration, not only of the arguments, but of petitions for rehearing, which were filed by the Petitioner in both courts, and in which all the reasons now urged were argued with great particularity by the Petitioner (R., Vol. I., pp. 679-693 ; Vol. II., pp. 1500-1508).

Their conclusions were clearly correct. The obligation, if any existed, on the part of the Prague Amusement Company to comply with the condition expressed on the plate as " terms to be fixed " by the Petitioner, was purely a *contract* obligation. It could not exist before the Amusement Company had any knowledge that such a condition had even been proposed. When the company received the machine bearing the plate, then, for the first time, it knew the restrictions upon the use of the machine, including the condition that it should be used in accordance with " terms to be fixed " by the Petitioner. Now that did not mean and could not mean terms previously fixed by the complainant, of which the Amusement Company had never heard. It only meant such terms as might be thereafter fixed, which that company might or might not accept. It had no notice that any terms had previously been fixed, and the acceptance of the machine with the plate upon it, could not be deemed an acceptance of those terms if any of them were continuing.

NO NOTICE OF THE "OTHER TERMS" WAS EVER GIVEN TO THE PRAGUE AMUSEMENT COMPANY.

There is not a scintilla of evidence in the record to show that the Prague Amusement Company knew what the "other terms" were which are mentioned in the notice. The machine in question was leased by the Prague Amusement Company, as already stated, on November 2, 1914. Even the letter to the Prague Amusement Company, already referred to, that it was using the machine "without license" was not sent until some months thereafter, so that it made its lease, and presumably gave the consideration therefor, without even knowing that it was claimed that the use of the machine was restricted to some terms or other, which had been fixed by the Patents Company.

Not only that, but at *no* time was any notice of *those terms* given to the Prague Company.

The plaintiff endeavored to show at the trial by questions asked of Mr. Marvin, that an officer of the Prague Amusement Co. had "knowledge of the conditions under which the Patents Company was *accustomed* to grant licenses when application was made for the right to use licensed machines" (Vol. I., p. 53, Re-d. Q. 129). Those questions were ruled out by the court, and no error is assigned because of that ruling, but, even had the questions been allowed, it is of no consequence what the Patents Company was "*accustomed*" to do. The only testimony which was relevant, and what the plaintiff was bound to prove was that the Prague Amusement Company *had knowledge* of certain imposed terms on the use of that machine.

There is no proof whatever to that effect and no questions were asked of Mr. Marvin to elicit such proof.

The first principle of the cases which have recognized the right of the owner of a patent to enforce restrictions on the use of the patented article in the hands of his licensee is that those conditions shall be clearly and unmistakably made

known to the purchaser at the time he acquires the patented article, and in the absence of such notice the condition cannot be enforced.

The restriction on the use of the patented mimeograph which was passed upon in *Henry vs. Dick* was first sought to be enforced in *Cortelyou vs. Johnson*, 207 U. S., 196. That case also was in the Circuit Court of Appeals for the Second Circuit, where Judge COXE held :

“ The foundation of the complainant's action is defendant's knowledge, not of the machine, not of the ink, but of the restriction agreement which alone made the sale of ink to the owners of the Neostyle machine unlawful.

*Cortelyou vs. Johnson*, 145 Fed., 933 at 936.

This court affirmed the decision of the Circuit Court of Appeals on the ground that notice of the restriction had not been proved.

*Cortelyou vs. Johnson*, 207 U. S., 196.

The rule applied in *Cortelyou vs. Johnson* is that knowledge of restriction on the article is an indispensable condition precedent to the cause of action in cases of this character. It is manifest that that requirement is not fulfilled and that knowledge of restrictions cannot be imputed to a licensee in possession of a patented article unless the terms of the notice, which he receives, are clear and definite and without ambiguity, so that he will know precisely what the restrictions are and govern himself accordingly.

Judge BROWN in the District of Rhode Island well expressed this rule, as follows :

“ The doctrine of acceptance of conditions upon the purchase of articles with labels, notices, or indorsements thereon requires at law specific proof that the conditions were brought to the purchaser's notice. In

equity the chancellor should be satisfied, not only that the text was brought to the purchaser's attention, but that the implications and indirect legal consequences of the agreement were understood, or at least were such as were fairly obvious to a purchaser in the ordinary course of trade."

*Lovell-M'Connell Mfg. Co. vs. Waite Auto Supply Co.*, 198 Fed. Rep., 133.

The necessary knowledge of the restrictions was also stated in *Henry vs. Dick*, as follows :

"The purchaser of an article made under a patent and sold originally subject to restrictions as to place or method of use is not bound by such restrictions *unless he buys with notice of them*, as such restrictions *do not run with the goods* and are obligatory only upon these persons who take the article with knowledge of the conditions."

*Henry vs. Dick*, 224 U. S., 42, citing

*McGruther vs. Pitcher*, 20 Times Law Reports, 652.

The petitioner does not deny the rule of the cases above cited as to notice of the conditions, but contends that the notice in this case required the Prague Amusement Company to *inquire* of the Motion Picture Patents Company and ascertain what the terms would be for the use of the machine.

The contention is unsound.

THE PRAGUE AMUSEMENT COMPANY WAS NOT BOUND TO INQUIRE WHETHER TERMS HAD BEEN FIXED BY THE MOTION PICTURE PATENTS COMPANY FOR THE USE OF THE MACHINE.

The best that Petitioner can claim for the notice is that it is ambiguous, and in that case doubts as to its meaning will be resolved in favor of the purchaser and against the Petitioner

who was the author of the notice (R., Vol. I., p. 36, x-Q. 39, 40), and caused it to be placed upon the machine.

*Texas & Pacific Co. vs. Reiss*, 183 U. S., at 626.

*Carpentier vs. Thurston*, 30 Cal., 123.

The purchaser of the machine had a perfect right to take the notice on its face, and to assume that if and when the Motion Picture Patents Company fixed other terms on the use of the machine, it would bring them to his knowledge and attention. The Petitioner's contention requires the unjustifiable assumption that the purchaser of the machine agreed to a condition not expressed in the notice, or that he made a subsequent contract in which he agreed to that condition.

"Notice to affect a party must not be vague but  
"certain \* \* \* and must be of an accomplished  
"fact—and not of an intention to do an act."

*Peoples Bank vs. Etting*, 41 Legal Intelligencer  
(Pa.), 5.

Second, before the Petitioner could call upon the purchaser of the machine to comply "with the other terms to be fixed" it was his duty to give notice of those terms in clear and definite language.

"Where a party contracts to do a thing, but the act on which the right to demand performance of the contract is to arise is indefinite, the defendant is entitled to notice before he can be called upon to perform it.

\* \* \* \* \*

"And, in general, where any option at all remains to be exercised by the plaintiff, notice of his having determined that option ought to be given."

*Chitty on Contracts*, p. 767, 16th Ed.

"When the time of performance is to be directly determined by the promisee, the law raises by implication a stipulation that notice shall be given to the

promisor, and such notice must be alleged in the complaint and proven."

4 *Enc. Pl. & Pr.*, p. 653.

"Where a man promised to pay for certain weys of barley as much as he sold them for to any other man; there the plaintiff is bound to aver notice, because the person to whom the weys are to be sold is perfectly indefinite and altogether at the option of the plaintiff, who may sell them to whom he pleases."

*Vyse vs. Wakefield*, 6 Meeson & Welby, pp. 453, 454, citing Viner's Abridgement, "Condition."

The principle of this case has a wide application and forbids the notion that the defendants, with no other knowledge of the subject than is derived from the bare general reservation under consideration, were under any obligation whatever to seek for further information.

In *Vyse vs. Wakefield* (*supra*), the Judges of the Court of Exchequer held that where there was an option by the plaintiff, which was to be exercised before the obligation of the defendant accrued, it was necessary for the plaintiff to give notice of the exercise of the option. Lord ABINGER said that where a party stipulates to do a thing which lies within the peculiar knowledge of the opposite party, notice ought to be given him (6 Meeson & Welby, 453). Baron PARKE laid down the rule stated in *Chitty on Contracts* (*supra*), and held that where a condition is indefinite "notice ought to be given by the plaintiff of his having determined his choice" (p. 455). Baron ALDERSON held that inasmuch as the plaintiff had a selection to make under the contract there in question, it was his duty to give notice of his having made the selection (p. 456). Baron ROLFE said, "What is the meaning of the contract where a party covenants to do something at the option of another? It must mean provided he have notice of that option having been exercised" (p. 456).

The cases cited at page 12 of the Petitioner's Brief are not

in point. The question involved in them was as to the application of the Statute of Limitations, and particularly as to what is necessary in order to show notice of a fraud sufficient to start the running of the Statute, which is not analogous to the present case, where the terms of a contract to be performed depend on the act of the promisee.

It is further to be observed that if the Petitioner can enforce the "other terms to be fixed" without those terms being brought to the attention of the purchaser or lessee of the machine at the time he acquired it, it may not only change and vary the terms from time to time and day to day as it sees fit, but it may require, as the Petitioner contends, any purchaser or lessee, wherever he may be situated, to ask the Motion Picture Patents Company on what terms he may use it.

That is to say, before the purchaser located in Portland, Oregon, or El Paso, Texas, or Tampa, Florida, can use his machine, it is necessary for him to write to or by some means communicate with the Motion Picture Patents Company in New York and ascertain what terms are imposed on the use of the machine.

The Court of Appeals was completely justified in its statement at the close of its opinion on the petition for rehearing that

"The notice affixed to the machine was so broad as to allow the patentee to fix any terms he might choose and to be repugnant to all rights which the owner of the machine might have obtained by his purchase and implied license" (R., Vol. II, p. 1511).

THE EXISTENCE OF THE LATHAM PATENT DID NOT RELEASE THE  
PETITIONER FROM THE DUTY OF GIVING ADEQUATE NOTICE  
OF ANY TERMS IT MIGHT FIX.

The vice of the Petitioner's argument is the assumption that the bare fact that the motion picture machine is *patented* makes it the duty of the user of that machine to first institute

inquiries in relation to restriction and then *follow them up* as far as he can, under penalty of suffering the consequences if he fails to discover restrictions on the use which an inquiry, if pushed further, would have disclosed. Now it is true that, if a user knows that an article is patented, either because so marked or otherwise, he is charged with knowledge of what the patent *itself* discloses. But his obligation stops there. He is *not* bound, without notice, to ascertain what contracts or restrictions the patentee has made with others *outside* the patent.

The suggestion that where a patentee *reserves* the continuous right to impose such other terms as to the use of a patented machine *to be fixed* as he sees fit, the user is *bound* without notice to ascertain what those other terms are before using the machine seems scarcely worthy of serious consideration. Circumstances may alter the obligation of the respective parties as to inquiry or notice, but *one* fact is conclusive; where the condition that requires action (*viz.*, here the *terms* to be *fixed*) can only be known to one party and cannot be known to the other, the party requiring the action must first give notice. That is this case. The petitioner has not cited any authority to support his extraordinary proposition; on the contrary, the authorities are all the other way, as abundantly appears. This Court has decided that the existence of a patent in no respect discharges the obligee from the duty of giving notice.

*Cortelyou vs. Johnson*, 207 U. S., 196.

*Henry vs. Dick*, 224 U. S., 42.

*Washing Mach. Co. vs. Earle*, 29 Fed. Cas., at 334.

The necessity of giving notice is absolutely inconsistent with the claim (Petitioner's Brief, p. 11) that the purchaser of a patented article must inquire to ascertain whether conditions have been imposed on its use.

### POINT III.

**THE DEFENDANTS, UNIVERSAL FILM MANUFACTURING COMPANY AND UNIVERSAL FILM EXCHANGE DID NOT HAVE NOTICE OF THE RESTRICTIONS WHICH THE PETITIONER CLAIMS WERE PLACED ON THE PATENTED MACHINE BY THE NOTICE.**

The point last above made is that the *Prague Amusement Company* did not have notice of any terms fixed by Petitioner pursuant to the notice of "terms to be fixed" and that no terms were ever fixed by the Petitioner.

Our contention under *this* point is that the *Universal Film Manufacturing Company* and the *Universal Film Exchange* never received notice of any of the restrictions placed upon the patented machine, and therefore cannot be held as contributory infringers. This is true both as to the restriction that the machine was to be used only with the film of the Edison Reissued Patent No. 12,192 purchased "from a licensee" of the Petitioner and the "terms to be fixed" by the Petitioner. Nowhere in the letters above set out (*supra*, pp. 5, 6) is there any statement that the infringement of the Petitioner's patents, therein referred to, consisted of a violation of the terms of the notice placed upon the machine. In order to enforce the alleged restrictions of the notice against the Respondents, it was necessary for the Petitioner to prove that the *Prague Amusement Company* used the machine with knowledge of the restrictions, and that the violation thereof would be an infringement of the patent, that the *Manufacturing Company* knew at the time it supplied the films "The Refugee" and the "Five Pound Note" to the Exchange that *those* films or pictures were to be supplied to the *Prague Amusement Company* and used by it *contrary to the*

*terms of the said notice, and that the Exchange knew at the time it supplied the said films to the Prague Amusement Company that they were to be used in violation of said notice. This required proof that both the Manufacturing Company and the Film Exchange, at the time it supplied the films in question, knew the terms imposed upon the use of the machine of the Prague Amusement Company by the notice thereon. There is no proof whatever to that effect.*

The only notion which the Petitioner ever attempted to give the Universal Film Manufacturing Company and the Universal Film Exchange was that contained in the letters which were to the effect that an unidentified projecting machine at the 72nd Street Playhouse was being used without a license at the time the notice was sent.

It is to be observed that the letter to the Exchange was written on *January 18, 1915*, and the letter to the Manufacturing Company on *March 3, 1915*. The proof upon which the Petitioner relies to support its charge of contributory infringement by reason of the supplying of film by the Manufacturing Company to the Exchange, and by the latter to the Prague Amusement Company, with knowledge that the said film would be used in violation of the alleged restrictions on the machine is that "subsequent to *March 4, 1915*, and prior to *March 17, 1915*, it (the Manufacturing Company) sold to said Exchange a copy of a certain motion picture entitled the *Five Pound Note*" \* \* \* "and a copy of a certain motion picture entitled *Refugees* and \* \* \* that said copies of said motion pictures \* \* \* were supplied by said Exchange of New York to said Prague Amusement Company on *March 17, 1915*, for use upon its said Simplex (projection) machine and that said motion pictures were so used on that date by said Prague Amusement Company" (Stipulation, R., Vol. II., p. 736, fols. 2206, 2207).

The mere fact that notice was served upon the Exchange on January 18, 1915, that the Prague Amusement Company was *at that time* using an infringing machine without license from the Petitioner is certainly not proof that the Exchange knew on *March 17, 1915*, when it supplied the said film, that it was contributing to an infringement, that is, that the Prague Amusement Company at that date, March 17th, did not have a license and right to use the machine. Nor is the fact that the *Manufacturing* Company had notice on March 3, 1915, that the Prague Amusement Company was using an infringing machine without license of the Petitioner proof that when, on some date between March 4th and March 17th, it sold the said pictures to the Exchange, it knew that said pictures were to be supplied to the Prague Amusement Company.

The Petitioner's theory with respect to its notice to the Manufacturing Company and the Exchange is directly in line with its theory and contention that the Prague Amusement Company was bound to inquire the terms upon which the machine could be used, although those terms could be varied from time to time as the Petitioner might desire. The Petitioner's claim in reality is that after it had sent the letters referred to to the Manufacturing Company and the Exchange it was the duty of the former Company to ascertain, before it supplied film to the Exchange, whether the Prague Amusement Company had obtained a right or license to use its machine and see to it that the Exchange did not supply the film furnished to it to the Prague Amusement Company at such times as the latter company did not have a license; and that it was the duty of the Exchange each time that it desired to supply pictures to the Prague Amusement Company to ascertain whether the Prague Company had a license, that is, whether it had complied with whatever terms the Petitioner might have fixed. On no principle of law or justice can such a theory be supported.

Furthermore the letters sent to those two defendants merely stated that the Prague Company was using its machine "without license." What kind of a license? By whom granted? What did it cover? No answer to these questions is given in the notice. The sellers of the film were entitled to know. To say they were bound to inquire is to repudiate the doctrine of *Cortelyou vs. Johnson*, for certainly the burden of proving notice which, under that doctrine, rests upon the plaintiff, is not sustained by a warning which does not inform but shifts the burden to the defendants to investigate and find out. The letters were in effect nothing more than this: "Your customer is using the film you sell him in a manner contrary to our claim of right, go and find out what that claim is and what he is doing,"—which certainly is not notice of any limitations on the use of the machine which plaintiff had imposed and the Prague Company had disregarded.

The burden is upon the Petitioner to prove that the Manufacturing Company and the Exchange knew that the Prague Amusement Company had not complied with terms which the Motion Picture Patents Company had the right to fix on the machine in question and had in fact fixed. Proof that the said defendants were warned that the supplies, which they had the right to make and sell, might perhaps be used to infringe a patent, is not sufficient.

In *Cortelyou vs. Johnson*, the Circuit Court of Appeals said:

"In that case the bill alleged, and the demurrer admitted, that the defendants 'with full knowledge of this method of putting complainants' monopoly in general use are making and selling staples adapted only to use with these machines.' In this case, as in all cases, the burden is on complainants to prove infringement by a preponderance of evidence. The defendant's knowledge of complainants' 'selling plan' is specifically alleged in the bill and denied in the answer. It must

be proved. The presumption drawn from the fact that the machine was largely advertised and therefore the officers of the defendant must have known its character is entitled to little weight in the face of the explicit testimony of these officers that they did not know. Having assumed that they had knowledge of the machine the next presumption is that 'they doubtless inspected the Neostyle Company's ink used thereon.' All this is plausible but insufficient."

"The foundation of the complainants' action is defendant's knowledge, not of the machine, not of the ink, but of the restriction agreement which alone made the sale of ink to the owners of the neostyle machines unlawful. The defendant had a right to sell to the owner of a machine, sold without the restriction, and there was nothing unlawful in selling to an owner of a machine having the notice thereon unless the defendant knew of such notice. \* \* \*

"Furthermore, though we are convinced that Randall, defendant's salesman, read the restriction notice it is evident that he misunderstood its import as he assured Gerber that no trouble would follow from buying the defendant's ink as it was not patented."

*Cortelyou vs. Johnson*, 145 Fed., 933 at 936, 937.

This court concurred "in the views expressed by all the Judges of the Court of Appeals that there is no sufficient evidence of notice."

*Cortelyou vs. Johnson*, 207 U. S., 196.

#### POINT IV.

### THE PETITIONER DID NOT PROVE A JOINT INFRINGEMENT AS ALLEGED IN THE BILL, WHICH, FOR THAT REASON, SHOULD BE DISMISSED.

The *only* infringement alleged in the bill, is a *joint* infringement, and therefore the only *proof* of infringement which would sustain a decree in favor of the plaintiff would be that all three defendants had joined in the infringement, or, more particularly stated, that the Universal Film Manufacturing Company and the Universal Film Exchange *together* contributed to the infringing use of the machine by the Prague Amusement Company. The defendants cannot in this suit be held liable for anything sort of a *common* participation in the alleged infringing act. If the bill had alleged a several, or joint and several, infringement it would have been demurrable and it cannot be sustained by proof of anything less than joint infringement by all the defendants.

"A joint tort being charged, not only had it to be proved as laid \* \* \* but the defendants had all to be liable for all that was resolved upon or done."

*Jayne vs. Loder*, 149 Fed. Rep., 21 at 31 (C. C. A., 3rd Circuit.)

It is said (C. C. A., Sixth Circuit):

"It is, of course, clear that two or more defendants cannot be jointly sued for infringement, except for acts in which there is some kind of common participation, and that there could rightfully be no injunction decree, nor accounting against Penhollow and Baker jointly for the independent acts of Penhollow or the independent acts of Baker."

*Vrooman vs. Penhollow*, 222 Fed. Rep., 895.

And Judge WARD applied the rule, on demurrer, in *Fichtel vs. Barthel* (173 Fed., 491) as follows :

" I find one (objection) that seems to me substantial, namely, that the complainants by charging the defendants as joint and several infringers, have combined distinct and independent causes of action which do not affect all the defendants. In other words, they cannot prove in the same case that the defendants Barthel and Daly, who are copartners, and Albert F. Miller, the other defendant, have been guilty of separate and independant acts of infringement."

It was, therefore, necessary for the plaintiff to prove, not only that the Prague Amusement Company used its machine in violation of lawful and enforceable restrictions of which it had notice, but that both the Universal Companies contributed to such use *with knowledge*. It follows that the plaintiff must show, (first) that the Manufacturing Company and the Exchange supplied film to the Prague Amusement Company intended to be used contrary to the provisions of the notice, with knowledge thereof, and (second) that the Prague Amusement Company, to the knowledge of the other two defendants had not, when it used the said film, complied with " terms " fixed by the plaintiff, and there is no proof of any " terms " fixed by the plaintiff, of which *any* of the defendants had notice.

It has been shown under Point III. (*supra*) that Petitioner failed to prove that when the *Manufacturing* Company supplied the pictures, the " Refugee " and the " Five Pound Note," to the *Exchange*, it knew or had any reason to believe that said pictures were to be supplied to the Prague Amusement Company, nor did the Petitioner prove that at the time the *Exchange* supplied the said film pictures to the Prague Amusement Company, it knew that they would be used in violation of the terms of the notice on the machine. For that and the other reasons set forth under Point III., the Peti-

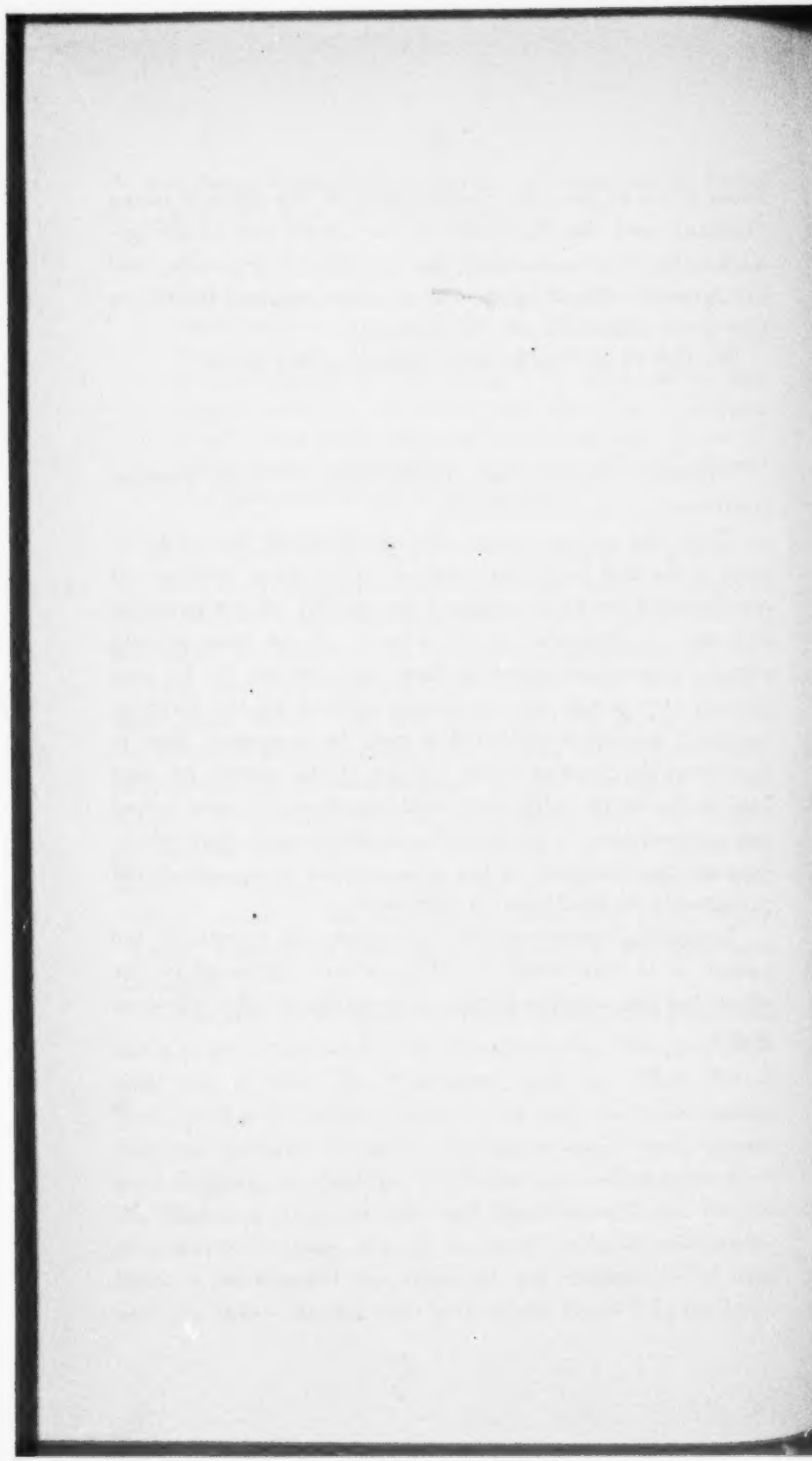
tioner failed to prove the participation of the Manufacturing Company and the Exchange in the alleged acts of infringement. The Petitioner, therefore, has failed to prove the *joint* infringement alleged in its bill of complaint, and the bill on that ground alone should be dismissed.

Neither of the Courts below passed on this point.

The above argument and points cover the only question considered by the courts below.

Under the present equity rules and pursuant to the directions of the trial judge, the evidence on the other defences of the Respondents which attacked the validity of the patent in suit, was incorporated in the record. As we have already stated the questions raised by these defences are to be considered only in case the restrictions are held by the Court to be lawful and enforceable, and it may be suggested that in that event the question of the validity of the patent be sent back to the courts below for consideration and decision before being passed upon by this Court in the first instance, particularly because the decision of the Circuit Court of Appeals would presumably be conclusive on that issue.

Inasmuch, however, as the evidence on the merits of the patent is in the record, the Respondents' argument to the effect that the patent is invalid is contained in the following pages.



# **Notice on Defendant's Machine.**

Mfr.'s  
Serial No.  
3557

**SIMPLEX**

Special  
License No.  
3666

made **THE PRECISION MACHINE COMPANY**  
by

Patented.

No. 576,185, March 2, 1897.	No. 580,749, April 13, 1897.
No. 586,953, July 20, 1897.	No. 673,329, April 30, 1901.
No. 673,992, May 14, 1901.	No. 707,934, August 26, 1902.
No. 722,382, March 10, 1903.	

The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of Reissued Patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine.

**MOTION PICTURE PATENTS COMPANY,**  
New York, N. Y., U. S. A.

Some statements in the Petitioner's brief may perhaps produce the impression that the Respondents deny that the machine of the Prague Amusement Company (Defendants' Exhibit No. 2) embodies the device described and claimed in the patent in suit. Such is not the case. The Respondents in the amendment to the answer above referred to (R., p. 20) pleaded that the machine in question *did* embody that device and they do not deny that fact.

### THE PATENT.

The Bill of Complaint charged infringement of all the claims of the patent. At the trial the charge of infringement was confined to the *seventh* claim alone, which came as a surprise to the defendants, who had the right to suppose that they were to meet the same claims, among others, which were in suit in a former case on this patent, Motion Picture Patents Co. vs. Independent Moving Picture Co., 200 Fed., 411, in which the Circuit Court of Appeals of the Second Circuit, then composed of Judges COXE, WARD and NOYES, affirmed the decree below on the opinion of Judge LEARNED HAND, Judge COXE dissenting, and held that the patent covers a projector and not a camera. In that suit, infringement was charged of Claims 1, 3, 5 and 8. The invention which was then claimed by the plaintiff to reside in the Latham patent, as set forth in those claims, was a *continuous sprocket feed*, which *produced and maintained a loop* in the film and thus prevented strain on the film, the sprockets on this continuous feed engaging in the holes in the edges of the film.

It appears also that in the Answer filed by the plaintiff in the suit brought against it by the Government in Philadelphia above referred to, it stated, as Mr. Marvin testifies, that "the *gist of the invention* made by Latham consisted in providing a device for feeding the film *regularly*

*and continuously so that a predetermined loop of slack was formed and maintained*"; and further, that the "intermittent sprocket feeding device operated on *this loop* of slack film which was freely moved, and *hence* there was no likelihood of the teeth of the intermittent sprocket wheel tearing or straining the film" (R., pp. 41, 42, 1-Qs. 70, 72). That is to say, the plaintiff there contended, as it did in the suit against the Independent Company, that the invention consisted in providing a sprocket *continuous* feed to draw the film from the feed wheel and provide a slack or loop from which the intermittent sprocket would take the film without the strain which, it is obvious, would be involved in pulling it by jerks from the heavy reel, which bears a considerable weight of film. Up to the time of the trial of this suit *that* was the invention which had always been claimed by the plaintiff for the Latham patent.

The object of the plaintiff in limiting its charge of infringement to the *seventh* claim is to endeavor to avoid the effect of the decision in the Independent Company suit and the prior Armat and Joly patents, which show a continuous sprocket feed for maintaining a loop, but which, so the plaintiff contends and defendants deny, do not show the equivalent of a sprocket on the intermittent feed. There is no *real* difference between the devices of the seventh and fifth claims.

For purposes of convenient comparison and to show the close similarity of the 5th and 7th claims, they are here inserted:

## CLAIM 5.

The combination with devices which support the bulk of a flexible film and supply it for exposure and receive it after exposure, of *positively-driven devices* separate and distinct from the film-supporting devices and located between them at opposite sides of the exposure-window, and *which engage the film and accurately insure its feeding*, which last named devices respectively produce and take up slack in the film, and an *intermittently-acting device provided with teeth* which engage in holes in the film whereby it feeds the film across the exposure-opening.

## CLAIM 7.

The combination with devices adapted to support the bulk of a flexible film and supply it for exposure and receive it after exposure, of *positively-driven toothed rotary devices* located between and entirely disconnected from said supporting devices and at opposite sides of the exposure-window, said toothed devices being adapted to carry and feed the flexible film by the engagement of their teeth with equally-spaced holes made in the edges of the film and to respectively produce and take up slack in the film, and an *intermittently-acting rotary feeding device also provided with teeth* which engage with the holes in the film, whereby the film is intermittently fed across the exposure-opening.

The Latham patent in suit issued from the Patent Office several years after it was applied for. The application, after a number of amendments, was placed in interference with Armat, Casler and another, and priority of invention, after a long and hard fought contest, was awarded to Armat. Subsequent to that decision a new patent solicitor, representing Latham's assignee, the E. & H. T. Anthony Company, completely rewrote the specification and claims of Latham's application and finally obtained the patent on the argument, which the Patent Office erroneously accepted, that the invention stated in the amended specification and claims was not involved in the interference.

## RESPONDENTS' POSITION ON THE MERITS OF THE PATENT IN SUIT.

Respondents maintain that the Latham patent in suit is invalid on the ground that in view of the patent to Edison for an intermittent sprocket which could be used both on cameras and projecting machines, and other patents to be referred to hereafter, no invention was involved in Latham's use of such a sprocket; that the patent was anticipated by patents to Armat, Joly and others; that the Patent Office having awarded the patent for the invention described by Latham in his original application to Armat, after the interference proceeding between them, the Office was without authority to award the patent to Latham, and its act in so doing was *ultra vires*; that the invention for which the patent purported to be issued was *not* the invention which Latham swore he had made when he originally filed his application and he never thereafter made oath that he had made the invention which purports to be covered by the amended specification and claims; that the alleged invention now claimed to be covered by the patent was not made by Latham, but by his skilled mechanical employee, Lauste; and that Latham in reality contributed nothing to the advancement of the art of motion picture projecting machines.

### **The Intermittent Sprocket with all its Functions and Advantages was Well Known in the Art Prior to Latham.**

The intermittent sprocket and its so-called "positive engagement" of the film, was an important and essential part of Edison's invention of the Motion Picture camera, on which the entire art is based, and was set forth in his original and re-issued patents. The object of the intermittent movement is, primarily, in the camera to permit intervals of rest of the

film while pictures are being taken, and, in the projecting machine, to permit intervals of rest while the pictures are being projected on the screen. It is so geared that the period of rest much exceeds the period of movement of the film. The pictures move at the rate of about sixteen a second, and it is apparent that the gearing must be an accurate piece of mechanism.

If this intermittently moving drum pulls directly on the reel, it is obvious that it is likely to tear holes in the side of the film and the film itself. As Mr. Marvin testified, the continuous feed was provided "to avoid strain on the film and create there a condition similar to what you would have if you were operating on a few inches of film only" (R., pp. 38, 39, x-Qs. 49-57).

A clear description of the device of the Latham patent and the respective functions of the intermittent and continuous sprockets will be found in the testimony of the defendant's Expert, Mr. Hammer, at pages 68-76 of the Record.

Mr. Hammer also describes the device of the Edison patents Nos. 491,993, 493,426 and 589,168 (R., p. 103). One of these patents, No. 589,168, originally contained claims covering the film used on the Edison camera and the projecting machines in question, which claims were afterwards embodied in and constitute the claims of the reissued Edison patent No. 12,192. This film, as described in said patent, was of a certain dimension, with holes in the edges, in which the sprockets are adapted to engage. Mr. Hammer points out (R., p. 103, fol. 308) that the Edison patent No. 491,993 contemplates the employment of an intermittent sprocket wheel for co-operation with the spaced holes in the sides of the film for feeding the film forward; also that the Edison patent, No. 589,168, describes the intermittent movement, and he shows that in these patents Mr. Edison "contributed to the art the definite idea that either of two forms of film, or either of two forms of

feed mechanism, might be employed in photographic cameras, or photographic *projectors*, or photographic kinetoscopes. In other words, if one uses plain film, one may use therewith a friction feed. On the other hand, if one employs a film with perforated edges, one may use therewith a sprocket feed. The art was definitely instructed that the selection of one form of feed or the other form of feed was merely a matter of choice on the part of the user and a matter of preference" (R., p. 104, fols. 310, 311).

Mr. Hammer has made it clear that the intermittent sprocket to draw the pictures along before the lens of the camera and obtain a period of rest greater than the period of movement, was clearly described and set forth by Edison, and was well known in the art long prior to the date of Latham's invention, as appears from the date of said Edison patents, viz., 1893, 1897.

The function of the intermittent sprocket in the camera was distinctly stated by Judge LACOMBE in the suit on re-issued patent No. 12,037, which was a re-issue of some of the claims of No. 589,168, which patent was sub-divided by re-issues into said patent No. 12,037 and said patent No. 12,192. Judge LACOMBE said :

"The important distinctive feature is the manner in which these intermittently moving parts handle the film. \* \* \* Such novelty, however, cannot be predicated solely on the circumstances that the intermittently moving parts operate directly upon the film. *The meritorious feature of the device is that they (intermittently moving parts) seize hold of the film firmly, move it positively, regularly, evenly, and very rapidly without jarring, jerking, or slipping producing a negative, which can be printed from and reproduced as a whole without rearrangement to correct imperfect spacing of the successive pictures.*"

*Edison vs. American Mutoscope Co.*, 151 Fed., 767, at 771.

Judge LACOMBE points out in his opinion in the above case that the "specification of re-issued patent No. 12,037 and No. 589,168, explicitly states that the 'teeth of the wheels, 5, enter the holes along the edges of the film for the purpose of positively advancing the film.' The organization described shows that the sprocket wheels are adapted to push the film along as they revolve, as well as to hold it back when they are at rest"—and further, "In succession each sprocket enters a hole thereby holding the film firmly and positively and either advancing it forward or holding it at rest by a method of engagement, which eliminates all chance of slip" (*Id.*, 771).

It is apparent that the problem of pulling the film across the lens of the *projecting* machine is exactly the same as that of pulling the film across the lens of the *camera*. The film moves at the same speed in both cases, and in both, as has already been shown, there must be a period of rest.

Mr. Marvin's testimony shows that the function and advantage of the sprockets in the Latham Patent are exactly the same as in the Edison patent as described above by Judge LACOMBE (R., pp. 373, 378).

In the Independent Company case Judge COXE referring to the Edison patent No. 589,168 said, "the Plaintiff's Expert, Mr. Waterman, asserts, and I see no reason to differ from him, that the apparatus here described (of Edison patent No. 589,168) can be used equally well for taking pictures and projecting them. It comprises a supply and take-up reel, with an escapement between them, having a sprocket wheel engaging the holes perforated at regular intervals on the two edges of the film to feed it along intermittently across the exposure opening. There is not, however, *the distinguishing characteristics of the Latham patent, the second feeding mechanism, which continuously maintains a loop and relieves the pressure on the intermittently feeding sprocket.*"

*Motion Picture Patents Co. vs. Independent Co.*, 200 Fed., at 422.

The novelty of the invention therefore cannot rest in the *intermittent sprocket*. If it does it is completely anticipated by the Edison patent, which, as Judge COXE stated, applies to projectors as well as cameras. Nor can it be said that the novelty resides in the combination of the intermittent and continuous sprockets. The invention of the patent does not rest in that combination, but, as Judge COXE pointed out and as the plaintiff up to the trial of this case always contended, the *only* feature which is *not* shown in the Edison patent is the *continuous sprocket feed* by means of which the loop is maintained, and it makes no difference whether the particular claim in question cover the combination of that feature with the intermittent sprocket, as in the seventh and fifth claims, or with any kind of intermittent device as in the *first* and some other claims. Every advantage and function which the *intermittent sprocket possesses* was completely shown in the *Edison* patents.

The *continuous sprocket*, in combination with mechanism for intermittently moving the film, was completely described in the *Armat* United States patent and the *Joly* French patent prior to the date of Latham's invention. There is considerable evidence in the record concerning that date, and as the *Armat* and *Joly* patents are not part of the prior art unless prior to that date, it is necessary first to determine when Latham's invention was made.

### **The Date of the Invention of the Patent in Suit.**

#### **THE DECISION IN THE INDEPENDENT COMPANY CASE.**

The decision of the Circuit Court of Appeals in Motion Picture Patents Co. vs. Independent Company (*supra*), is directly controlling on this point. It affirmed Judge HAND who held that Latham's patent is for a *projector* and not for a

camera. Therefore, *the date of Latham's invention is the date when he first conceived and reduced to practice a projector embodying the invention described and claimed in the patent, and that date is subsequent to Armat and Joly.* The evidence on this point will now be briefly referred to.

Woodville Latham was, at the time of his alleged invention, an elderly man, not a practical machinist, and having no particular acquaintance with the motion picture business except that derived from his sons, who were young men engaged in exhibiting the Edison "peep-hole" machines. He engaged a skilled machinist, who had been employed in the Edison works, by the name of Eugene Lauste, who did the practical work, and, as will be seen hereafter, is the man who actually designed the combination which is now claimed to be Latham's invention. He engaged in addition Emil W. Kleinert, another mechanic, and also had the assistance of a Mr. Dickson.

It is claimed by the plaintiff in this case, as in the suit against the Independent Company, that Latham's date of invention was February 26, 1895. Assuming that there was a reduction to practice at that date by the use of a machine containing the *continuous sprocket*, the evidence shows that the machine was used only as a *camera*. All the evidence on this point cannot be considered in this brief. Suffice it to say that the Appellant's brief admits that the use of the machine on February 26, 1895, was a use in a *camera*. It is stated in the Petitioner's brief that the feasibility of its use as a projecting machine was appreciated and it was so used in an experimental way, but there is absolutely no proof that it was ever used as a projector until subsequent to the exhibition of the Armat machine, which will be hereafter referred to. Without referring in detail to the evidence, it may be said that it shows that Latham and Lauste both knew that the success which had attended Edison's efforts in the motion picture field had been due, primarily, to the fact that he had

devised a camera for photographing moving pictures in which the pictures were taken with great rapidity, and this had been done by intermittently moving the film and bringing it to rest, so that the exposure might be taken, and then moving it along for the next exposure, and in this apparatus the interval of rest of the film had been very much greater than the period of motion. In the Edison camera kinetograph the film had been perforated and had been intermittently moved by sprocket feed devices, as already shown; and his patent No. 493,426 showed that the device was applicable to projectors also (see specification, R., p. 1207, lines 88-103). It was natural, therefore, that when Latham and Lauste began their work they should select the Edison type of film, the Edison type of sprocket feed devices, and the use of an intermittent feed device in connection with the shutter having a small opening, for their camera. Lauste testified that he had been familiar with the idea of forming a loop connection in a moving picture apparatus, where long films were employed, and incorporated that idea in the Latham camera (R., Vol. I., p. 773, line 103). The only departure which they made from the Edison camera was the employment of longer films, and the loop of slack film of which Lauste had knowledge, as above stated.

It was not until May, 1896, subsequent, as will be seen hereafter, to Armat's use of the continuous sprocket feed, that additional development work was done which brought Latham to the point where he could make application for the patent in suit.

Latham's original machine was never used except in a very few experiments for projecting pictures. It was experimented with once as a projector, but the results were very "unsatisfactory" (R., p. 642, x-Q. 127), and instead of developing the machine into a projector they used the continuously moving machines—like Edison kinetoscope—as above stated (R., p. 642, x-Qs. 128-130). Mr. Latham himself testified in the

interference proceeding that he abandoned the idea of using his camera as a projecting machine, and that meanwhile he had found out how to project the pictures of a *continuously* running film (R., p. 957, fol. 2871, p. 533, fol. 1597).

The Patent Office Tribunals held affirmatively that he *had* abandoned it (R., p. 1462, fol. 1385), and that Armat antedated Latham (R., Vol. II., pp. 1462, 1477).

The Examiner of Interferences, in the Patent Office, in deciding the Interference between Latham, Armat and Casler, held that it was apparent that Latham's machine "was designed and made primarily for the purpose of taking pictures and not for projecting the pictures on a screen" (R., p. 384, x-Q. 4). He further held that *the machine as it stood at that time was not in a condition for exhibiting pictures*, but arranged to be used as a camera, which was the use to which it had been put almost continuously (R., p. 384, x-Q. 5).

As above stated, Mr. Latham used a so-called kinetoscope for exhibiting the pictures taken on his camera, and it was not until May, 1896, that he adapted his machine to project pictures. He was probably induced to do this because his son, Gray Latham, saw Armat's machine on exhibition at the Atlanta Exposition during September and October, 1895 (R., Vol. 2, p. 735), and Mr. Armat testified that he saw Gray Latham looking at the machine while it was being operated at Atlanta (R., p. 385, x-Q. 9). Gray Latham was also present at the first night exhibition of the machine in Koster & Bial's Theatre in New York (R., p. 385). It was after Latham knew of the success of Armat's use of the continuous sprocket feed and the other mechanisms of Armat's machine, that he, with Lauste, set to work to build a machine which would project pictures on that principle (p. 384, x-Qs. 8-12), and it was not until then and after they had altered the camera so that it would work as a projector that the patent was applied for.

The machine itself is not before the Court. It is impossible in this brief to discuss the evidence as to its use by

Latham and, as already stated, the decision in the Independent Company case, makes it unnecessary to do so. Under that decision the patent covers a *projector* and not a *camera*, and therefore the only date of invention which can be relied on is the date when Latham first used a *projector* embodying his alleged invention.

Chancellor KENT says :

"If a decision has been made upon solemn argument and mature deliberation, the presumption is in favor of its correctness ; and the community have a right to regard it as a just declaration or exposition of the law, and to regulate their actions and contracts by it."

*Kent, Comm.*, 476.

*Minnesota Co. vs. National Co.*, 3 Wall., 334.

*Bresnahan vs. Tripp Giant Leveller Co.*, 99 Fed., 280, at 282.

*Germania Iron Co. vs. James*, 89 Fed., 811, at 817.

*Victor Talking Machine Co. vs. Sonora Phonograph Co.*, 188 Fed., 330.

### **The Armat Patent and Invention.**

The Armat projector is set forth in his patent No. 673,992 (R., Vol. II., p. 1258), which is owned by Petitioner and is among the patents in the list on the notice on the alleged infringing machine.

It is stipulated (R., p. 734) that that patent correctly describes and illustrates a machine publicly exhibited by Mr. Armat at the Atlanta Exposition in September and October, 1895, which is several months prior to Latham's completion of his projector in May, 1896. Armat's application for his patent was filed on February 19, 1896, also prior to the completion of Latham's projector, so that confining Latham to the invention of the projector under the former decision, there is no doubt that Armat was prior in point of time.

The Armat patent, which is printed at page 1258 of the record, is clearly described by Mr. Hammer (R., pp. 117-124), and is illustrated by a diagram (Defendant's Exhibit 32, p. 1271). It contains a continuously operating sprocket feed, which draws the perforated film steadily and continuously through the delivery reel and a similar sprocket for feeding the film to the take-up reel. This apparatus, like that of Latham and in the same manner, supplies a loop from which the intermittent feed takes the film and a loop from which the film is taken by the "take-up" reel.

The plaintiff does not deny that the Armat patent contains the *continuous sprocket* feed which forms the loop in combination with an intermittent feed, but contends that the Armat *intermittent* feed is *not* a *sprocket* feed. Leaving that point aside for the moment, we again call attention to the fact that the plaintiff is now trying to distinguish its seventh claim from the claims which were involved in the former suit against the Independent Company on the ground that Claim 7 is for a *different* invention.

Such is not the case. As already pointed out, the alleged invention of the Latham patent, and which the plaintiff always claimed prior to this suit is the combination of a *continuous sprocket feed* with an intermittent movement to form a loop, and it is immaterial whether the intermittent is a sprocket or some other kind of an intermittent feed.

The *seventh* claim is substantially identical with the *fifth* claim which was involved in the former suit and is *for the same alleged invention* as the other claims, to-wit, the loop formed and maintained by the continuous sprocket feed.

We have already quoted the plaintiff's characterization of the Latham invention in its answer in the Government suit. In its suit against the *Independent Company*, in which it alleged infringement of claim *five*, its whole contention and claim was that Latham's invention consisted of the *maintaining of a loop by means of a continuous sprocket*, as is shown

in the record and brief in that case, the former containing the depositions of Professor Main and Mr. Waterman, two very able patent experts, who testified in that suit on behalf of the plaintiff.

Petitioner's contention in that case is well shown by the following extract from the brief of its Counsel in the case, which was admitted by Mr. Marvin :

" It (the Latham invention) was shortly afterwards (the date of its use in a camera) invented independently in France by M. J. H. Joly, who used it both in cameras and projectors, and still later, in the year 1895, in this country by Thomas Armat, who used it exclusively in projecting machines " (R., p. 379).

In other words, plaintiff in that case took the position that Latham's invention was shown in the Armat and Joly patents, but that they did not affect the validity of Latham's patent, because he was the first to make the invention.

It recognized that, under the decision in the Independent Company suit, the earliest date of invention it could prove for Latham was *subsequent* to Armat and Joly, and therefore it was necessary, in order to sustain the Latham patent, to make the invention something *different* from what is shown in those patents. For that reason, in this case, claim 7 is invoked, because it specifically mentioned an intermittent *sprocket*, apparently overlooking the fact that *it is to all practical purposes identical with claim 5*.

This attempted distinction is one of words and not of substance. The alleged invention covered by the first, third, fifth and eighth claims and by the seventh claim, is the same, viz., the maintaining of a loop by a continuous sprocket.

It is to be noted that claim 5 contains the combination of the toothed intermittent and the toothed continuous sprocket. It specifically mentions the "*intermittently acting device provided with teeth*" and refers to the continuously acting devices

"which *engage* the film and *accurately* insure its feeding." The "accuracy" here referred to is to be obtained only by sprocket teeth on the *continuous* feed. So that claim *five*, according to the plaintiff's own contention, is specifically for the same combinations of toothed intermittent and toothed continuous devices which are covered by the *seventh* claim.

But even if claim 7 can, by any forced interpretation be said to be for a different invention from that stated in the other claims, it is nevertheless anticipated, because

THE ARMAT PATENT CONTAINS THE EQUIVALENT OF THE INTERMITTENT SPROCKET.

It is important to note in connection with the Armat patent and the other anticipatory patents hereafter to be mentioned that Latham had specifically pointed out that *equivalents* of the sprocket may be used in practicing his invention. He says in his patent (p. 4, line 8; R., p. 722):

"in order that the slack may be formed and the intermittent movement across the optical axis effected with *accuracy and certainty* it is desirable, *although not essential*, that the rollers which effect these movements be provided with the sprocket teeth shown *or their equivalent*, so that they may *positively* engage with the film and *positively* move it without the *possibility of any slipping*, which is apt to occur when frictional contact alone is relied on, because such slipping will *preclude proper registration* between the picture and the optical axis."

In other words, any device by which the film is held positively, *i. e.*, so as to prevent slipping, will perform the same function and have the same advantages as the toothed sprocket, either on the continuous or intermittent feed, and be the equivalent of those sprockets in the sense of the Latham disclosure.

Armat states, with reference to his means for obtaining a

longer period of rest and illumination than of movement, as follows :

" This I accomplish by moving the film or other picture-carrying surface intermittently in such manner that the interval of exposure and illumination of the picture shall exceed the interval of time required to effect the change " (R., p. 120, Armat patent, p. 2, line 64).

The *continuously* operating feed mechanisms are provided with teeth and are admittedly the equivalent of the continuous sprockets of the Latham patent. Armat's preferred method for securing intermittent movement was through the use of a " beater " but his specification indicates a full knowledge of the use of a toothed intermittent feed as appears from a part of his specification, which reads as follows :

" This roller is preferably provided with a suitable covering and may have reduced ends, as shown in Fig. 8, so that it may engage the surface of the film between the perforations *in order to prevent enlarging or otherwise distorting the perforations* " (R., 122, fol. 366).

That is to say, Armat preferred to use a " beater " to obtain intermittent movement, but he recognized, and in effect pointed out, to those skilled in the art, that an intermittent sprocket feed might be used, bearing in mind that he was already using a perforated film and *continuous* sprocket feeds.

The beater, by means of which the intermittent movement is obtained, pulls a certain and predetermined amount of film from the loop each time it engages with the film, and therefore contains the equivalent of the device of the Latham patent.

Mr. Armat himself (called as plaintiff's witness) testifies that

" If the machine be constructed and designed to feed the film ' so that the film may be intermittently moved

with great rapidity without unnecessary strain or wear upon the film ' it would, in my opinion, be an embodiment of the Latham feeding mechanism " (R., p. 385, x-Q. 13).

There is no denial that in his patent the film is "intermittently moved with great rapidity without unnecessary strain and wear upon the film."

Mr. Armat's testimony is that in view of prior suggested devices it would not involve any originality merely to suggest a type of projector employing an intermittent sprocket or sprockets, and that *it was a mere matter of choice to those who had knowledge of the Edison method of taking pictures whether they would adopt a friction feed or a sprocket feed for their cameras* (R., pp. 386, 387, x-Q. 19). Mr. Armat has been engaged in the designing and perfecting of motion picture machines for many years, and is an educated, intelligent man, who at one time acted as his own attorney in the Interference proceeding.

Mr. Hammer said that the Armat patent shows a projecting machine embodying all the elements of Claim 7 because Armat discloses in the passage above quoted that toothed intermittent feeds are contemplated as among the possibilities and as equivalent structures, and are simply considered by him as of less practical advantage than a friction device or beater, to accomplish the identical result, with less strain, than if teeth were employed (R., Vol. I, pp. 136, 137, fols. 403-411).

It is to be borne in mind that Mr. Marvin, who testified as an expert for the Petitioner, is the President of the Plaintiff Company and greatly interested in the success of this suit, and his testimony is not that of a disinterested party and is to be considered in the light of his sympathies and interests, which naturally are all with the plaintiff.

He admitted that in the suit against the Independent Company, Mr. Waterman, a recognized authority and expert,

testified on behalf of the *plaintiff*, that Joly and Armat, who were the only "patentees of machines which can lay any claim to practical and commercial utility, embodied his (Latham's) improvements in the machines shown in their patents" (R., pp. 376, 377, x-Q. 244).

The Armat machine was used for projecting pictures for some time at the Atlanta Exposition, in a practical commercial manner. It was afterwards used at Koster & Bial's Music Hall, where it certainly could not be said to be an experiment. Armat's invention cannot be thrown aside as impracticable and his patent considered as a paper patent, for it was a practical success and the plaintiff itself owns it and licenses projecting machines under it. The notice on each machine manufactured under plaintiff's licenses contains in the list directly under the word "patented," the number and date of the Armat patent, viz., "673,992, May 14, 1901," and the license agreement (R., p. 1074) with the Precision Company specifically licenses the Precision Company to manufacture projecting machines under that patent. It is true of the Armat patent, as of the Latham patent, that there is no projecting machine made or sold in this country which is not licensed under it.

In view of the licenses granted by the Petitioner under the Armat patent, it is estopped to say that there are no machine on the market embodying it.

### **The Joly Patent.**

The Joly French patent is dated August 26, 1895; the Joly United States patent was applied for June 5, 1896, and issued October 20, 1896, and is for the same invention as the French patent (R., pp. 1233, 1244).

Mr. Hammer prepared a diagrammatic representation of it (Defendants' Exhibit 30, R., p. 1255). The date of Joly, like the date of Armat, is subsequent to Latham's alleged use of his invention on a camera, but many months prior to Latham's

first use as a *projector*. The only difference between Joly and Latham which is claimed by the plaintiff is that, like Armat, Joly's drawings show a beater operating on the film and not an intermittently acting toothed wheel.

The same considerations which make Armat a prior inventor apply to Joly. He shows the invention which, up to the present suit, was always claimed for the Latham patent, viz., the maintaining of the loop by a continuous feed sprocket, and Claim 7 being, in substance, for the same invention, Joly, like Armat, anticipates Latham, the latter's date of invention being long subsequent to Joly.

The Joly machine, while referred to in his patent as a camera, is also there said to be adapted for use in making "animated projections" (R., p. 111, fol. 332). The device is well shown in the diagrammatic representation (R., Vol. II, p. 1255), which, in connection with Mr. Hammer's description (pp. 111-115), so clearly sets forth the mechanism that it is unnecessary to further describe it. It is sufficient to say that it completely covers Latham's invention, as was admitted by the Plaintiff in the suit against the Independent Company, where its counsel's brief contained the statement already referred to, viz., that Latham's invention was made independently in France by Joly, who used it both in cameras and projectors (p. 174, x-Q. 255).

The only distinction which plaintiff attempts to make between the devices of Joly and Latham is that the form of intermittent mechanism shown by Joly is not a sprocket. But it did not involve invention for those skilled in the art to substitute the intermittent sprocket for the beater of Joly, and when he and Armat showed the continuous feed sprocket for maintaining the loop and obtaining accuracy and certainty of registration of the film, they showed everything which may possibly be claimed for the Latham patent and all that had been claimed for it by the plaintiff until it was forced by the decision in the suit against the Independent Company,

to find some means, if possible, to evade the effect of the priority of Armat and Joly ; and, furthermore, the " beater " is the equivalent of the intermittent sprocket under the terms of the patent in suit, as above shown.

### **Other Patents in the Prior Art.**

There are other patents in the prior art which deprive the patent in suit of patentable novelty, and will therefore be briefly referred to.

THE GRAY PATENT NO. 540,545 OF JUNE 4, 1895.  
(R., Vol. 2, p. 1225).

There is a diagrammatic representation of this patent at page 1231 and it is described by Mr. Hammer at pages 105-108. Further description is unnecessary except to say that Gray shows a feeding mechanism to continuously feed the film by which a loop of slack is maintained and a hook *10*, which is the device to intermittently feed the slack, and corresponds to, and is the equivalent of, the intermittent sprocket of Latham.

It is to be noted here that in the suit against the Independent Company, the defendant's device was the camera known as the " Warwick " camera, which, as Mr. Marvin testifies (R., p. 377), contained a reciprocating hook as the intermittent device, and the plaintiff there contended that that intermittent hook was the equivalent of the intermittent sprocket of the Latham patent. The Gray reciprocating hook corresponds to the hook of the Warwick camera and is likewise the equivalent of that sprocket.

The film of this patent moves upward instead of downward as in the modern moving picture machines, but there is a feeding mechanism to uniformly feed the film from the feed roll and a corresponding mechanism to deliver it to the take-up reel, thus forming a loop at each end of its path between the

two reels, and hooks for drawing the film intermittently across the exposure window. The continuous feeds  $n$  and  $n^1$  are not toothed, but they perform the same function in substantially the same way as the tooth arms of Latham, and the patent shows that the maintaining of a loop in connection with an intermittent sprocket was not new with Latham.

Mr. Hammer says that the Gray patent, taken in the light of the state of the art and the date of the application

“ was a full disclosure of means for the protection of a  
 “ delicate strip of film or photographic material in  
 “ passing through a photographic device adapted for  
 “ use in connection with moving Pictures ” (R., p. 135,  
 x-Q. 57).

There can be no doubt of the correctness of Mr. Hammer's statement, and it may further be said that inasmuch as Gray clearly showed an intermittent *sprocket* performing the same function, doing the same work as the intermittent sprocket of Latham, and being in all respects its equivalent, it did not involve invention to put teeth on Gray's continuous feed, such teeth, or sprockets, being clearly shown in Armat and Joly.

GREENE & EVANS (BRITISH) PATENT, No. 10,131 of 1889.  
 (R., p. 1153.)

Diagrammatic representations of the mechanism of this patent used by Mr. Hammer will be found at pp. 1165-1167, showing two different forms in which the invention may be used. Mr. Hammer's description will be found at pages 89-94, to which the court is referred. It is sufficient to say here that the patent shows clearly, in a camera, an intermittent feed mechanism in which sprockets engage with the film and a continuous feed for maintaining the loop, although the continuous feed is not provided with sprockets.

These patentees clearly set forth the idea of relieving the strain on the film by providing a loop between the reel and

the intermittent movement in the same manner as in the Latham patent. It will likewise be noted that the intermittent sprocket was shown in this patent seven years prior to Latham's alleged invention.

THE MAREY (FRENCH) PATENTS OF 1890 AND 1893  
(R., pp. 1169, 1179).

Translations of these patents with copies of the original drawings are at pages 1169 and 1179 of the record. A diagrammatic representation of the 1890 patent, produced by Mr. Hammer, is reproduced at page 1177, and a similar representation of the 1893 patent at page 1193.

The 1890 patent shows in a camera a reel for supporting the bulk of the film, an intermittent feed *r*, and another reel for supporting the film after exposure. Between the intermittent and the take-up reel is a feeding mechanism to uniformly feed the film. This 1890 patent is explained by Mr. Hammer at pages 95-97 of the record. Marey recognized and provided for the problem of preventing the strain on the film, caused by the intermittent jerk and provided a continuous feed to relieve the strain. The patent describes independent feed reels and take-up reels and apparatus for securing a definite and constant amount of film to the take-up reel; also the provision of a loop of slack film against which the pull of the intermittently acting spring *r* is brought to bear (R., p. 97).

The Marey patent of 1893 is for a camera or a projector. The lower reel *a* (diagram, p. 1193) supports the film before exposure. The continuously rotating feed device *j* drives the film continuously and steadily from the delivery reel, and in this way forms a loop of slack film. The take-up reel *B* is positively driven, and drives the film past the exposure opening. The intermittent movement is provided by an intermittently acting pressure device *L*, *L*<sup>2</sup>, which is in

the nature of a clamping device. Other apparatus is provided for the winding up of the film without strain. Mr. Hammer's description of this patent is referred to for further details (R., pp. 98-101).

These Marey patents show everything in Latham except that the feeding mechanism is not provided with teeth.

#### THE CHINNOCK CAMERA.

The existence and use of the Chinnoek Camera prior to Latham's invention of the patent in suit is contained in the depositions of a number of witnesses and a considerable number of exhibits in the record which need not be referred to, because the plaintiff's objection to the machine as a reference is, not that it is not proved to have existed at the time claimed, but that it does not contain Latham's invention.

The Chinnoek camera is described by Mr. Hammer at pages 127-129, and his diagrammatic representation of it is at page 1319. Photographs of the machine are reproduced at pages 1309-1317.

In this machine the film moves downward as in the defendants' machine, and not upward as in the machines of the prior art which have just been discussed. The machine itself is in evidence, but it is believed that a clearer idea of its construction and mode of operation is contained in the diagrammatic representation than in the machine itself.

In brief, the film is drawn from the reel by the uniformly or continuously driven feed roll 39, which produces the slack 21<sup>a</sup>, and an intermittently acting device 50<sup>a, b, c, d</sup> draws the slack from the film across the exposure window, after which there is a second slack 21<sup>b</sup> in the film, and a device 46 for taking up the slack. Thus the same problem is solved in the same way as in Latham by providing a continuous feed of the film from the supply reel, the formation of a loop of slack

film drawn upon by an intermittent feed mechanism, which in turn forms a second loop of slack from which the film is taken on to the supply reel.

In view of the statements of the Latham specification, already quoted, to the effect that any device which will give continuous movement to the film for the production and taking up of loops and the intermittent action of the film past the optical axis is an equivalent of the sprocket feeds illustrated in the Latham patent, it becomes a question of fact as to whether the Chinnoek device, for example, did or did not give that character of positive feed which the Latham patent describes as desirable. The testimony of the men who actually built and used the Chinnoek apparatus, to the effect that it was a satisfactory and commercial device cannot be overcome by the *ex post facto* testimony of Mr. Marvin, plaintiff's president, to the contrary; that testimony showing directly that Chinnoek's apparatus was operative in this particular point of accuracy and certainty and positive engagement of the film against slipping (R., pp. 213-15). Certainly, Mr. Marvin's testimony is more than balanced by the testimony of Mr. Latham's second patent—No. 600,113—in which he glorifies the accuracy and certainty of the friction feed device in contrast to an imperfect action of sprocket feeds.

This testimony likewise supports Mr. Hammer in his statement that the apparatus of the Gray, Greene & Evans, and Marey patents contain the advantage claimed for Latham in that they prevent the slipping of the film.

THE EDISON PATENTS NOS. 491,993, 493,426 AND 589,168.  
(R., pp. 1196-1200-1212.)

The mechanism and the inter-relation of these patents is described by Mr. Hammer (pp. 102-104), whose testimony should be referred to for explanation.

In No. 493,426, which is for the so-called "peep-hole ma-

chine " or kinetoscope in which pictures are *exhibited* upon a long continuous strip of film, Mr. Edison says that the means for advancing the film and operating the shutter may be the same as in the apparatus for *taking* pictures described in the application of his Serial No. 403,535, which resulted in patent No. 491,993 (R., p. 1196). Referring to the drawings of No. 491,993, there is shown an intermittent sprocket wheel 19 for co-operating with the space holes in the sides of the film for feeding the film forward.

In patent 589,168 the movement of the film may be continuous or intermittent, but the latter is preferable as is also the longer period of rest than of movement. At line 44, page 1, of that patent, Mr. Edison states, in effect, that with the apparatus of that patent he had been actually able to attain a rate of exposure of forty-six pictures per second with a period of movement which was only one-tenth of the total elapsed time.

In these patents Mr. Edison contributed to the art the idea that in cameras or projectors a *plain* film should always be used with a *friction* feed, and a film with *perforated* edges with a *sprocket* feed. So that, as was pointed out at the outset of the discussion on the validity of the Latham patent, we have the patents of Edison, particularly patent No. 589,168, pointing out the function of the intermittent sprocket to positively engage the film and regularly and swiftly move it across the exposure window, which is exactly the function of the intermittent sprocket referred to in claim 7 of the Latham patent. And it is clear also from these patents that Mr. Armat was absolutely correct, when he testified in the former suit as already referred to, that to those skilled in the art, viz., those acquainted with the Edison patents among others, it was merely a matter of choice as to whether a sprocket or a friction feed was used (R., p. 386, x-Q. 19). On account of the development of the Edison film with its perforated edges, covered by the Reissue patent No. 12,192 and the Edison camera

patent, Reissue No. 12,037 (also a reissue of 589,168), and the acquiring of those patents by the plaintiff, who compelled all manufacturers and users of cameras and projecting machines to observe the terms of its licenses, so that the film, the cameras and the projectors were all tied together, the sprocket became the universal mechanism used, but to say that that universal adoption of the sprocket is due to Latham is entirely false. Edison originated the sprocket, and taught the art the advantages of its use both in cameras and projectors.

THE PRINTING PRESS PATENTS.

Kidder No. 224,440 ;

Eckerson No. 433,776,

Cox No. 508,184

(R., pp. 1112, 1119 and 1134).

These patents show that the idea of maintaining a loop to prevent the strain of a jerk on the heavy roll of material, such as paper or film, was well known and old prior to Latham's invention. For a description of the mechanism of these patents the court is referred to Mr. Hammer's testimony (pp. 77-85). Diagrammatic representations of their mechanism will be found at pages 1137, 1139 and 1141.

In addition to the above patents, the LePrince patent No. 376,247 of January 10, 1888, should be referred to as described by Mr. Hammer, page 87. It shows both a camera and a projector. A strip with perforated edges is employed and fed forward by sprocket wheels, the sprockets engaging in the perforations of the strip, and the patent also shows that where the intermittent movement of the film is to be secured, it is necessary and desirable to have the pull of the intermittent device brought to bear on a loop of slack film rather than on the reel (R., p. 88).

The Mayer patent No. 525,991 of 1894 shows means for continuously supplying film to a slack loop pulled upon by an intermittent feed device (R., pp. 104, 105).

The question of the validity of claim 7, considering it by itself and irrespective of its equivalency to the claims in suit in the Independent case, comes down to this. The Latham machine employs a sprocket for the intermittent feed. There was nothing new in the combination of the continuous and the intermittent feed in projectors. There was nothing new in an intermittent feed in the combination shown in claim 7. There was nothing new in a sprocket as one form of intermittent feed or in a rotary sprocket. There is no new result in the combination of claim 7. There is no proof of any advantage of a rotary sprocket intermittent feed, over a "beater" intermittent feed. The difference between the different kinds of intermittent feed devices was merely a matter of choice and mechanical judgment. Taking the combination as a whole all that can be claimed for claim 7 is that it substitutes for one element of the Armat and Joly combinations a simple equivalent. That the substitution is an improvement does not appear and its general use is due to the fact that the Motion Picture Company through its system of patent licenses and contracts deprived the art of any choice in the matter. There is no invention whatever in claim 7, but as we submit merely mechanical skill. Furthermore, claim 7 is practically identical with claim 5 which plaintiff itself asserted was for the same invention independently made by Armat and Joly.

"In view of this state of the art, there was no patentable invention, and nothing more than mechanical skill, in putting the diagonal cuts or bevels on the same side of each leg of the staple."

*Tack Co. vs. Two Rivers Mfg. Co.*, 109 U. S., at p. 120.

"It is but the display of the expected skill of the calling, and involves only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the facility of manipulation which results from its habitual and intelligent practice; and is in no sense the creative work of that inventive faculty which it is the purpose of the Constitution and the patent laws to encourage and reward."

*Hollister vs. Benedict Mfg. Co.*, 113 U. S., at p. 73.

**Lauste Designed Latham's 1895 Camera. It Was Not Invented by Latham.**

There being no doubt of the existence of Armat's machine, the Joly patent and the Gray patent at the time they bear date, the burden is on the plaintiff, if it may, as we deny, rely on Latham's early claims, to prove that *Latham* made the alleged invention prior to those references, by *thoroughly convincing proof*.

*Clark Thread Co. vs. Willimantic Linen Co.*, 140 U. S., 481.

In order to sustain that burden of proof it was necessary for the plaintiff to show, not only that a machine embodying the invention of the Latham patent was in existence on February 26, 1895—the date claimed for it—but also that that machine was designed by Latham or under his direction; that the invention was his and not made by some one else. The evidence of the plaintiff is not sufficient to sustain this burden, but, on the contrary, indicates that not Latham but Lauste is entitled to whatever of credit there is for the machine of 1895, which, according to plaintiff's contention, forms the basis of plaintiff's claim of priority over Armat, Joly and Gray.

Lauste was a skilled mechanic who had been employed in Edison's works, and when Mr. Latham started his shop with the idea of building machines Mr. Dickson, who had been associated with Edison in the development of moving picture

apparatus, sent Lauste to him. Lauste testified in the Interference Proceeding between Latham, Armat and Casler, on behalf of Mr. Casler, to the effect that he, and not Mr. Latham, invented the 1895 camera (see Rec., Vol. II., p. 765 *et seq.*) The testimony given by him in the suit against the Independent Company on behalf of the *plaintiff* was relied on greatly to show the use of the camera on February 26, 1895, but it also shows that Lauste was the real designer or inventor. He said that his testimony in the Interference Proceeding was true (R., p. 409, x-Qs. 115, 116) and further testified that all of the machine except a supplemental roller which was suggested by Mr. Dickson was his work (R., p. 412, x-Qs. 135, 136).

Lauste had expert mechanical knowledge of moving picture machines, Latham had no practical knowledge whatever about them. He had some ideas but was incapable of carrying them into effect. The alleged invention, which is not that of a broad idea, but claimed to be merely the use of sprockets or teeth on the feeds of the machine, was a purely mechanical expedient which would not have occurred to him, but *would* have occurred immediately to a skilled mechanic like Lauste.

It will be seen by reference to his testimony in the Interference Proceeding that Lauste testified specifically that he conceived and carried out the mechanism for maintaining the loop (R., Vol. I., p. 777).

It is impossible here to refer to all the testimony of Latham and Lauste which shows that Mr. Latham had nothing but the most general notion of a camera or a projector, while Lauste on the other hand, knew, from his experience with moving picture machines, exactly the problems to be met, the functions of sprockets and various kinds of feed mechanisms on such machines, and, as the record shows, made sketches of the machine for Mr. Latham (R., p. 404, x-Qs. 77, 78; p. 392, x-Q. 13).

"In contemplation of law an invention does not exist until the inventor's ideas have been reduced to practical form."

*American Graphophone Co. vs. Leeds*, 170 Fed., at 331 (C. C. A., 2nd Circ., Judge COXE).

In *Standard Cartridge Co. vs. Peters Co.*, 77 Fed., 630, cited by Judge COXE in the above case, Judge LURTON said :

"On the other hand, if Ligowsky had only an inchoate idea that in some way an endless belt carrier, suitably actuated, might be devised, which could be substituted for the old rigid circular carrier, but did nothing towards developing and demonstrating the utility of his conception, he would not be an inventor at all. The mere existence of an intellectual notion that a certain thing could be done, and, if done, might be a practical utility, does not furnish a basis for a patent, or estop others from developing practically the same idea. *Agawam Co. v. Jordan*, 7 Wall., 583-602; *Christie v. Seybold*, 6 U. S. App., 544, and 5 C. C. A., 33, and 55 Fed., 69."

In the present case Latham, who was a pure theorist, who had no practical experience in mechanics and could not read the ordinary mechanical drawing (R., p. 547, x-Q. 76), let alone reduce to concrete form, by way of drawing, sketch or description, a mechanical structure comprising several inter-related parts and movements, was *incapable* of representing in physical form the device which was described in his patent and never did so.

"He may have conversed eloquently and persuasively on the subject, but it is requisite that something more tangible than a mental conception must be proved."

*Corrington vs. Westinghouse*, 178 Fed., 711.

*Clark Thread Co. vs. Willimantic Linen Co.*, 140 U. S., 489.

## THE HISTORY OF LATHAM'S PATENT.

The opinion of Judge HAND in the suit against the Independent Company (200 Fed. Rep., p. 410) is concerned principally with a discussion of the facts surrounding Latham's invention and the progress of his application through the Patent Office. In the opinion those facts are referred to in connection with the discussion of the question of whether the patent covers a camera or must be limited to a projector, but they are also relevant and material particularly to the points:

(1) That the Patent Office was without power to issue the patent to Latham, it having already held that Armat was the earlier inventor; and

(2) That the alleged invention for which Latham was given his patent was not the same invention on which he applied for it.

### LATHAM'S ORIGINAL APPLICATION.

It was filed June 1, 1896. The character of its disclosure and the nature of the original claims were discussed by Judge HAND in the Independent Company case (200 Fed., 413).

It was, in effect, for a device in which was obtained a greater period of rest than of motion as a means for securing better illumination of the screen, in contrast to the Edison Kinetoscope arrangement, for example, which had a *continuously* moving film (R., Vol. II., p. 1325). The problem of protecting the film from injury as it was intermittently jerked along arose *incidentally* to the arresting of the motion of the film for the purpose of better illumination. The invention he conceived he had made was, as is apparent from his original specifications and claims, the stopping of the film as a means for better securing the illumination of the screen and thus obtaining a better picture with a smaller source of light.

The original claims were disallowed on July 9, 1896, in

view of the prior patent to Gray, in connection with other references. *In December, 1896, Latham assigned his application to the E. & H. T. Anthony Company (R., pp. 1344-45), and thereafter had no interest in it, and on December 26, 1896, less than three weeks later, he filed an application for his patent No. 600,113 (R., p. 1291), in which he expressly condemned the sprocket feed and stated that the only way to achieve a successful result was to use friction feed, both on the continuous and intermittent. He expressly discarded the perforated film as impracticable and used plain film with friction feed. In this patent he said "sprocket machines are apt to tear the picture strip, besides being otherwise objectionable." Again at line 61 (p. 1291) he says that in his accompanying drawings he shows "one embodiment of my invention, the best known to me at the present time", and (p. 1293, line 131) he says "for scientific purposes this apparatus (friction feed) is the only one of which I have any knowledge that is capable of giving anything like accurate results."*

#### INTERFERENCE PROCEEDING.

On January 23, 1897, about a month after Latham's second application in which he discarded the sprocket feed, an interference was declared with Armat, Casler and one Amet who does not afterwards appear (R., p. 1347), the issues of which were, in brief, a film, a tension device to keep the film taut and prevent puckering at the point of exposure, means for intermittent movement of the film, so that the periods of rest and illumination exceed the period of movement, and mechanism for feeding the film so as to provide slack between said mechanism and tension device, "whereby the film may be intermittently moved with great rapidity without unnecessary strain and wear upon the film" (R., p. 1347).

It is necessary here to consider briefly Armat's application and the proceedings in his case. His patent was applied for

on February 19, 1896, three and a half months prior to the application for the patent in suit.

As originally applied for, his claims covered the combination with a picture carrying strip or film of a tension device adapted to keep the film taut and prevent flexing or puckering at the point of exposure, and mechanism for feeding the film so as to provide slack therein between the same and said tension device, whereby the film may be intermittently moved with great rapidity without sustaining unnecessary strain and wear. We have already seen that he had used a machine at the Atlanta Exposition in the Fall of 1895 which concededly contained the continuous sprocket maintaining a loop, in combination with an intermittent feed, and his original application showed, as his patent shows, such an apparatus (See Stipulation, R., p. 374).

In order to make Armat's claim patentable, the Patent Office required him to add to it another element, viz., "means for intermittently moving the film through the tension device at short intervals exceeding the interval required in effecting the movement, so that the interval of pause and illumination shall exceed the interval of rest," and Armat's application was rejected until he added the words above quoted to his claim, which then made up the issue of the interference which appears in the record (p. 1347). In other words, as the Court of Appeals for the District of Columbia (R., p. 1474, fols. 4421-22) holds, the Patent Office then regarded as *indispensable* to render the combination patentable the inclusion of the provision that the interval of pause and illumination should exceed the interval of movement, and Armat was *refused* a patent for the device for which a patent was afterwards awarded to Latham, viz., the maintaining of a loop by means of a continuous sprocket feed in the combination with an intermittent feed device, *irrespective* of the feature of pause and illumination.

A great deal of testimony was taken on the interference,

which was decided by the Examiner of Interferences in favor of Latham, but, on appeal, he was reversed by the Board of Examiners, which was affirmed by the Commissioner, whose decision in turn was affirmed by the Court of Appeals for the District of Columbia (See decisions, R., Vol. II., pp. 1437-80).

The Board of Examiners-in-Chief held that merely because a camera might be modified so as to be used as a projector, did not mean that Latham's camera fell within the issues, and that there was no proof that in Latham's camera there ever was an arrangement giving a period of rest and illumination greater than the period of movement; that if it was obvious and simple to transform the Latham camera into a projector, he had not done so for some fifteen months after February 26, 1895, when he first used his camera, apparently being compelled to develop a different type of exhibiting machine in which the film moved continuously (R., pp. 1450-52). The Commissioner of Patents in his decision awarding priority to Armat said that Latham did not reduce his invention to practice prior to the filing of Armat's application, but, on the contrary, abandoned it in favor of another form of picture exhibiting device in which the film moved continuously (R., p. 1462).

So that the Board of Examiners-in-Chief and the Commissioner both held in accordance with our contention here, viz., that Latham's date of invention cannot be predicated upon his camera use of February, 1895, but was some time subsequent to the filing date of Armat.

The language of the Court of Appeals of the District of Columbia shows clearly what has already been referred to, viz., that the Patent Office regarded the interval of pause and illumination as an essential element of the invention and treated Armat on that basis, so that while he was granted priority to Latham, he was required to limit his invention to the loop mechanism now said to be covered by Latham, *in combination with* the element of interval of pause and illumination, although

he had originally endeavored to obtain his patent for the broader claim which *omitted* this last named element (R., p. 1474).

Pursuant to the District Court of Appeals decision, the patent for the invention in interference was awarded to Armat on May 14, 1901, and at that time the Patent Office had found and decided that there was no room for a broad mechanical claim on an intermittently moving film with devices for taking up slack, and that ruling had deprived Armat of the claim which he had originally filed and to which he claimed to be entitled.

#### PROCEEDINGS ON LATHAM'S APPLICATION SUBSEQUENT TO THE DECISION OF THE INTERFERENCE.

The original rejection of Latham's application by the Patent Office on July 9, 1896, left original claims 8 and 10 only allowed. On March 23, 1901, the E. & H. T. Anthony Company filed an amendment containing seven new and very broad claims, only one of which mentioned sprocket feed (R., p. 1351). On April 12, 1901, sixteen of the seventeen claims were rejected (R., p. 1355). On January 21, 1902, Mr. Phillips Abbott, who had been substituted as attorney, filed an amendment, in which he stated that the interference had been "entirely without justification" (R., pp. 1356, 1357). He re-wrote the specification and claims (pp. 1370-1388) and included in them the "positive feed" of the film. A number of important changes occurred in this new specification; it may be said of all of them that they appear to have been made with the idea of emphasizing *accuracy and certainty* as concomitants of the sprocket feed, although that idea was nowhere put forward in the original specification, and *was condemned by Latham himself*. Mr. Abbott was at first unsuccessful but he persisted in his arguments, both oral and written, with the Primary Examiner and finally succeeded in obtaining the patent.

A very important part of the specification of the patent as

issued and that which contains the description of the necessity, functions and advantages of the feeding devices and points out that it "is desirable, though not essential, that the rollers which effect these movements be provided with the sprocket teeth shown or their equivalent, so that they may positively engage with the film and positively move it without the possibility of any slipping which is apt to occur when frictional contact alone is relied on," *was first introduced in the patent by this amendment*, although at that time the inventor himself had expressly *condemned* the sprocket or "positive engagement" and had stated that the *friction feed* was the *only one of which he had "any knowledge that is capable of giving anything like accurate results"* (R., Vol. II., p. 1293, lines 130 *et seq.*).

Under the well settled rule, which will hereafter be referred to, where a *new invention* is incorporated into an application, there must be a *new oath*. There was *no new oath* to the amendment introduced by Mr. Abbott, as Judge HAND pointed out in his opinion, and Mr. Latham could not and, as a truthful man, would not have made oath to it, because, as he stated himself, he had no knowledge of that invention, to wit, the use of *sprockets* to positively engage the film and *thereby* secure accuracy and certainty of registration.

On February 18, 1902, the Patent Office rejected all of the new claims, filed as above stated on January 21st, with the exception of claims 11 and 12, which were of a very detailed character (R., p. 1389).

On July 18, 1902, after Mr. Abbott had had a personal interview with the Examiner on July 8th, he filed a reply containing an argument, in which he devoted his attention, first, to the "law" of the case, and then to what he claimed was a differentiation between Latham and the prior art (R., pp. 1393-1406). In this communication he cancelled *all* of the claims which had up to that time been presented and submitted twelve *new* claims which are very different from, and

some of them, including claim seven, considerably broader than, the original claims which will be referred to hereafter.

On July 30, 1902, three of these new claims, 7, 10 and 12, were held by the Examiner to be objectionable because the film was made an element (R., p. 1412), and the Anthony Company was required to take that element out which was accordingly done by a communication by Mr. Abbott, dated August 2, 1902, in which he substituted new 7th and 10th claims, the former being now in suit (R., p. 1413). The patent was then passed to issue on August 26, 1902.

On the above facts the defendants contend, as heretofore stated, (1) that the Patent Office had no right to issue to Latham a patent for an alleged invention which it had already awarded to Armat; and, (2) that the invention on which the patent was issued to Latham was not the same invention on which he applied for one.

1. THE AWARDING TO LATHAM OF A PATENT BROADER IN ITS SCOPE THAN THAT OF ARMAT WAS AN ULTRA VIRES ACT ON THE PART OF THE PATENT OFFICE, WHICH HELD ARMAT TO BE THE FIRST INVENTOR, BUT REFUSED TO ALLOW HIM A CLAIM FOR THE BROAD INVENTION NOTWITHSTANDING HE APPLIED FOR IT.

The claims as finally issued to Latham were broader than the issues of the interference proceeding, although they cover the *identical* structure which was the subject of that interference, and all the evidence in the interference proceeding was directed to the priority of the conception and reduction to practice of the invention embodied in that structure. The Board of Examiners-in-Chief, the Commissioner of Patents and the Court of Appeals for the District of Columbia all agreed that priority of invention and reduction to practice of *this* invention, embodied in the structure which the plaintiff contends embodied Latham's invention, belonged to Armat.

But a Primary Examiner, persuaded by the *ex parte*

argument of an ingenious patent solicitor, in effect, though perhaps unwittingly, overruled the findings of those tribunals and awarded a patent to Latham, the defeated party in the Interference, with claims broader than those granted to Armat, and which in fact covered and dominated Armat's invention.

The enlargement of the scope of the claims in Latham's patent in suit results from the omission, in his amended claims, of the element of *greater rest and illumination* which was in his original application, and which, as already pointed out, *Armat was compelled* by the Patent Office to put in his application in order to obtain his patent. The omission of this element was deliberate and, as appears from the amendments and arguments of Mr. Abbott—was expressly designed to get a broader claim which would dominate the Armat structure, on the pretext that it was not involved in the interference (R., pp. 1356-57).

The 10th claim of Latham's original application, which was the basis of placing him in interference with Armat and Casler, did not contain any reference to the longer period of pause and illumination, but the interference was declared on the *expressed statement* of the Examiner, *acquiesced* in by the applicant, that that element was embraced in claim 10, and was therefore part of the interference (R., p. 1347). *Latham never asserted during the interference that he was entitled to any broader claim than that stated in the issues* (R., p. 1347).

It is a well settled rule that the Commissioner of Patents is without authority to issue to a party, who, in an interference proceeding, is adjudged to be the later inventor, a patent for his interfering structure, with claims which cover the structure of the party who, in that proceeding, has been adjudged the prior inventor. In the present case the structures of Latham and Armat were equivalents. They were so held to be by the Patent Office and the Court of Appeals for the District of Columbia, and were acknowledged to be so in this case

by Mr. Armat, who repeated his testimony in the interference case that it was only a matter of engineering choice to use a sprocket in the intermittent feed (R., p. 386), and his specification itself in the part already quoted recognizes and shows to those skilled in the art the possibility of using a toothed intermittent feed, which we may again repeat is not the invention which, up to this case, Latham was claimed to have made.

In *Blackford vs. Wilder*, 28 App. D. C., 535, Wilder, after priority had been awarded to Blackford, asserted broader claims upon the interfering subject matter, and persuaded the Primary Examiner to declare a second interference, in which respect he was fairer than the applicant here, but his reason was the same, viz., that he had an earlier device, adjudged in the interference not to conform to the issue, which, however, embodied the broader claims later asserted. The Court of Appeals said :

" Assuming patentability, therefore, the question to be determined is whether, in view of the former proceedings in the Office culminating in the first declaration of interference between these same applications, and the final decision therein in favor of Blackford, Wilder is now deprived of the right to go back and amend by inserting broader claims dominating those that were by that decision awarded to Blackford? In other words is Wilder's right to make the amended claims and maintain the present interference thereon concluded by the former adjudication ?

\* \* \* \* \*

" Having had the right to make the broader claims in the earlier stages of the proceedings in the Patent Office, as well as the opportunity, in the first proceeding, to introduce all of his evidence relating to the construction and operation of his Exhibit E, structure, his right, in both respects, terminated with that litigation."

*Blackford vs. Wilder*, 28 App. D. C., 535.

Commissioner of Patents Mitchell said :

" No claim should be allowed to the defeated party which could, by any latitude of construction, be held to embrace matter common to the structure of both parties to the interference."

*Ex parte Booth*, 56 O. G., 141.

In *Blackford vs. Wilder (supra)*, the Court of Appeals for the District of Columbia viewed the case from the standpoint of an estoppel, although the authority of the Commissioner was necessarily in question and it was implied that he lacked authority to issue a patent to the defeated party. In a subsequent case, the same court held directly to that effect and said :

" The remedy of the defeated party is by way of appeal. He has no right whatever thereafter to prosecute the claims of the issue in an *ex parte* case. It follows, therefore, that when Thomson and Lemp abandoned their appeals from the decision of the Primary Examiner denying their right to make the claims in issue, that decision became final and *res adjudicata* as between the parties to the interference, and that thereafter the Commissioner was without authority to direct the Primary Examiner to readjudicate in Thompson's and Lemp's *ex parte* applications the question whether they had the right to make the identical claims of the issue in the interference proceedings."

*Ex rel. Newcomb Motor Co. vs. Moore*, 30 App. D. C., 464.

This Court held that only by an adjudication in accordance with Section 4915 of the Revised Statutes has the Commissioner authority to issue a patent to one who has been adjudged a later inventor in an interference proceeding for an invention which was at issue in that proceeding.

*U. S. ex rel. Hoe vs. Butterworth*, 112 U. S., 50.

Section 4915 provides that, where a patent has been refused either by the Commissioner or on appeal from his decision, the applicant may bring a suit in equity to compel issue of a patent to him for his invention, and such adjudication, if in his favor, "shall authorize the Commissioner to issue such patent." There is no other authority by which the Commissioner can issue a patent on an invention for which he has once refused a patent.

Further, it is clear from Section 4904 of the Revised Statutes that the Commissioner has no authority to issue a patent for interfering subject matter to any party to the interference, except the one adjudged to be a prior inventor.

Where the Commissioner has no authority to issue a patent, his granting it cannot serve to make it valid.

*Mahn vs. Harwood*, 112 U. S., 354.

*Weston vs. Empire*, 136 Fed., 599.

The argument of the assignee's attorney, which was to a considerable extent made in oral interviews, was, so far as appears from those parts of it which were in writing and are in the file wrapper (R., p. 1356, etc.), contrary to the law and did not correctly state the facts. No tribunal which passed on the case had conceded broad claims to Latham, as Mr. Abbott argued after the interference had ended, nor did the Court of Appeals of the District, or any other tribunal, adjudge Latham to be the prior inventor of any part of the subject matter which, as above shown, included what was afterwards awarded to Latham. It was held that what Latham claimed to have done at an earlier date, and had abandoned, had been defined as not patentable by the Patent Office and did not involve the invention which was the subject of the interference.

Therefore it is submitted that the Patent Office was without authority to issue the patent to Latham because, by so doing, it awarded to him a patent which deprived Armat of

the benefit of the decision which had been rendered in his favor and of the monopoly to which he was thereby entitled.

2. THE INVENTION NOW CLAIMED FOR LATHAM WAS NOT THE INVENTION WHICH HE ORIGINALLY APPLIED FOR, AND A NEW INVENTION HAVING BEEN INSERTED IN HIS APPLICATION WITHOUT A NEW OATH, HIS PATENT IS INVALID.

Petitioner contends that the original claim 6 of the Latham patent, which is the nearest of the original claims to claim 7 here in issue, claims three toothed feed drums, and on that account the invention now claimed was contained in the original application. Such is not the fact.

Latham did *not* disclose, show or claim as his invention a device consisting of a continuous feed sprocket for maintaining a loop on which an intermittent sprocket acts. Nowhere in his original specification is there an indication that he conceived any such invention. He did not make oath that he had made such an invention. The original 6th claim which is now said to disclose it covered an entirely different combination, viz., three toothed feed drums *plus* the following elements :

- (1) A perforated picture bearing strip ;
- (2) a driving shaft ;
- (3) gearing transmitting the motion of said shaft to two of said drums ;
- (4) *broken gearing whereby the motion of said shaft is transmitted intermittently to remaining drum ;*
- (5) appliances for insuring slacks in the film above and below the intermittent drum, whereby each picture is momentarily brought to rest as it comes into line with the optical axis of the apparatus and the slacks of the film are alternately taken up and restored (R., p. 1338).

Element (4), viz., the broken gearing whereby the intermittent movement was obtained, was essential in this combination not only because it was made so by inserting it therein, but also because by that gearing Latham obtained the greater

period of rest and also of illumination, which was his *primary idea* and to which the feeding appliances were subsidiary. He conceived and believed his invention to rest on his success in obtaining this intermittent motion, but the claims as amended do *not* contain that element which was necessarily eliminated after the decision against Latham in the interference proceeding. There is no such element in the 7th claim, and without it claim 7 is for an entirely different combination and invention from that which originally resided in claim 6.

It was the combination of original claim 6 to which Latham made oath of inventorship. *That* combination is the combination necessary in the light of the Latham original specification to accomplish the purpose of the invention.

It does not follow that if Mr. Latham had been asked to make oath that he was the inventor of the combination now set forth in the 7th claim, he would have done so. Every indication is that he would *not*, first, because of the prior art, and, second, because he absolutely repudiated it. In his application for his patent No. 600,113, he said that for scientific purposes his friction feed apparatus, which is the antithesis of the positive feed of the patent in suit "is the only one of which I have any knowledge which is capable of giving anything like accurate results" and that "sprocket machines are apt to tear the picture strip besides being otherwise objectionable" (R., p. 1291, line 19).

The facts in this case are analogous to those in *Steward vs. American Lava Co.*, 215 U. S., 161, where the specification was materially changed by a new attorney of the applicant without a new oath. The original specification spoke of producing a hollow-shaped funnel flame by reason of gas being forced through contracted openings at very great pressure, but the invention was not stated to rest in this feature. "He (Dolan) made no claim for a process and disclosed no invention of a device. This being so, the amendment (which rested the invention on the funnel-shaped flame)

required an oath that Dolan might have found it difficult to take and for want of it the patent is void."

*Steward vs. American Lava Co.*, 215 U. S., at 168.

In the present case, as in Dolan's case, the original application for the patent mentioned the device or devices which were afterward inserted in the patent, but the applicant never made oath that he was the inventor of *that* device. On the contrary, his oath was that he had invented a *different* device. He never made a *new oath* that he was the inventor of the device for which the patent afterward issued, and there is nothing to show that he himself claimed to be an inventor of that device because, as above stated, there was no presumption when he filed his application that he claimed to be the inventor of anything except what he then described and claimed *as his invention*.

The rule of *Steward vs. American Lava Company* is based on well settled authority and has been applied to facts closely analogous to those in the case at bar.

*Railway Co. vs. Sayles*, 97 U. S., 554.

*Eagleton vs. West*, 111 U. S., 491.

*Consolidated Co. vs. McKeesport*, 40 Fed., 21 at 26.

*Hestonville Co. vs. M'Duffee*, 185 Fed., 798.

*Ney Mfg. Co. vs. Swineford Co.*, 211 Fed., 469, at 472.

Judge HAND specially found that the "positive feed" claims of the patent in suit were for a "new invention" which was inserted in the patent without a new oath, and that those claims were, therefore, bad. He says:

"So much for the argument drawn from the formal change in the claims; but the vice goes to the essence. In his second patent, which, as I have said, he made expressly applicable to cameras and projectors, which operated by friction devices only, and the claims of which do not mention the pause feature, Latham had

spoken of that device as 'the only one of which I have any knowledge that is capable of giving anything like accurate results' 'for scientific purposes.' That means that the 'positive feed' of the patent in suit gave nothing like accurate results, as well as being apt to tear the films. Page 1, lines 19 to 22. Turning next to the patent in suit, we see the 'invention', as defined in the specifications, originally consisted, and still consists, of the positive feed only as a means to the full rest for purposes of illumination. The purpose of his invention was 'the stoppage of each picture during its exposure (to) permit the requisite quantity of light to pass through the condenser,' etc. It consists of three elements—means of bringing the film to rest, means of reducing the strain on the film arising from the rapid interruption and renewal, which the period of rest requires, and means for uniform winding and unwinding. Here is no suggestion that the accuracy of measurement is a factor, or that the positive feed is important, except as the pause requires rapid interruption and renewal. It is perfectly consistent with the second application, which was for accuracy of registration. Coming next to the original claims, the consistency continues. The first four are clearly directed at securing the necessary pause. Claims 6 and 7 are of the same character and refer to the same period of rest \* \* \* The claims after January 17, 1902, do contain the 'positive feed,' some of them alone, and some still as a means of securing the required rest; and it was then the change first occurred.

\* \* \* \* \*

" \* \* \* In so far as the 'invention' resides now in the 'positive feed' feature, it is a complete abandonment of his position for nearly six years after the application was filed. In so far as it resides in the 'rest' features, it completely ignores the interference litigation as though it had never occurred. As to the former, I think I have already shown it in enough detail. There was no suggestion anywhere of it till the date I mention. There was repudiation of its accuracy in the

second patent. *The means to secure the rest were of consequence only in so far as they actually did assure the period of rest. If the patent abandons that and substitutes the 'positive feed' as the patent, it has become a 'new invention' in every sense.*" (Italics supplied.)

*Motion Picture Patents Co. vs. Independent M. P. Co.*, 200 Fed. Rep., at pp. 416, 417.

It appears from the history of Latham's application that the plaintiff is in this position: *If the positive feed mechanism was the original invention disclosed and claimed by Latham, it was involved in the interference which was decided against him and the patent for it was Armat's; but, if it was not the invention of his original specification and claims, then he has put in a new invention by his amendments without oath.*

### **The Practical Value of the Latham Patent.**

All motion picture projecting machines were licensed by the plaintiff under the Armat patent, the Latham patent and other patents on projectors acquired by the plaintiff, and the infringing machine, like practically all projecting machines, bears the notice that it is covered by those patents. The use of the projecting machines has been tied up with the film and the cameras, so that the plaintiff could impose terms on all users of such machines and, as the licenses covered all the patents, the licensees, pursuant to their agreements used the Latham patent.

Under these circumstances it cannot rightly be said that the fact that all projecting machines contain the combination set forth in the Latham patent is evidence that Latham made a highly valuable invention.

The success of those machines is largely accounted for by the invention of Edison, the invention of Armat and the other patentees under whose patents the machines are licensed to be manufactured.

It is to be carefully noted also that, even if the success of the machine could in large part be attributed to the combination shown in the Latham patent, that has no bearing on the question as to whether Armat and Joly anticipated Latham. If the success of the machine is due to their invention, the credit of that success belongs to them and not to Latham. Nor does it have any bearing on other questions in the case, particularly as to the defendants' contention that the Patent Office was without authority to issue the patent to Latham, and that a new invention was inserted in the application without an oath, so that the patent was issued for a different invention from that in the original application.

Furthermore, while the plaintiff now claims that the invention of the Latham patent rests in the sprocket for obtaining accuracy and certainty of registration, it is proved by the defendants and admitted by the plaintiff (R., pp. 39, 40, x-Qs. 58, 61), that every projecting machine must have on it an apparatus usually termed the "framing device" for permitting an adjustment of the film and the sight opening or aperture to provide for the frequent disturbance of the original registration, caused by the tearing of, or wearing on, the perforations in the film and other defects therein. Mr. Hammer, in his testimony (R., p. 132), mentions a suit brought by the Nicholas Power Company, a manufacturer of projecting machines, for infringement of a patent for such a "framing device." So that the continuous and intermittent sprockets to some extent at least fail in the advantage and invention claimed for them, viz., accuracy of registration, and every moving picture projecting machine in the United States contains a device to permit the operator to readily compensate for and correct the inaccuracies and uncertainties and irregularities in the movement of the film by means of the sprockets.

The patent in suit also shows a device for aiding in the "accuracy and certainty" of registration, to wit; the frames

57 and 58 provided "so that the strip may be fed or moved with *greater accuracy and certainty*" (R., p. 721, line 257), which is further evidence that accuracy and certainty are not due to the sprockets alone, but that other devices not part of the seventh claim of the patent in suit materially contribute to that result.

In the case of the Nicholas Power Company, above referred to, Judge MAYER said:

"It was early discovered that some means must be provided to permit a relative adjustment of the film and the 'sight opening' or aperture, as now called, because even with the short lengths of film then used (50 or 100 feet) the original registration of the picture and opening would be disturbed by imperfections in the sprocket holes, splices in the film and the like, and necessitate readjustment or 'framing of the picture' to continue the exhibition."

*Nicholas Power Co. v. C. R. Baird Co.*, 222 Fed. at 935-936.

While commercial success may turn the scale when the question of *invention* is in doubt, the facts above stated demonstrate that it is unsafe to predicate invention on large sales of a machine which contain the patented combination as one of many patented features some of which have been claimed and held to be highly valuable, and as to any other issue in the case it is absolutely immaterial.

The plaintiff has failed to prove that the defendants have infringed the patent in suit as alleged in the bill of complaint, for it appears that the Prague Amusement Company had an implied license to use that machine, and that the conditions sought to be imposed upon that use were unlawful, unreasonable and unenforceable and knowledge of them was not brought home to the defendants. Even had the defendants used the device of the patent without right, the

plaintiff cannot recover, for the patent is invalid, because it was anticipated by Armat and Joly, because there was no invention present in the patented combination in view of the patents to Edison and others, because the Patent Office was without authority to issue the patent in view of the interference proceedings and the requirements made of Armat, and also because the invention for which the patent purported to be issued was not the invention which Latham swore he had made and for which he originally applied. It appears also that, if *any* invention was made in connection with the work of Latham, it was made, so far as it is contained in the patent in suit, by Lauste. The development and success of the art of projecting moving pictures is due not to Latham, but to Edison, Armat, Power and others, whose inventions are used in the great majority of moving picture projecting machines in this country, but the Petitioner is endeavoring to continue the control it has enjoyed over the entire motion picture business by means of the Latham patent which, according to Petitioner's own claim, covers nothing more than pointed teeth on a wheel or drum.

The decree of the court below was right and should be affirmed.

OSCAR W. JEFFERY,

EDMUND WETMORE.

Counsel for Respondents.

JOHN B. STANCHFIELD,

Of Counsel.

MOTION PICTURE PATENTS COMPANY v. UNI-  
VERSAL FILM MANUFACTURING COMPANY  
ET AL.

CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE  
SECOND CIRCUIT.

No. 715. Argued January 12, 15, 1917.—Decided April 9, 1917.

Under the patent law the grant by patent of the exclusive right to use, like the grant of the exclusive right to vend, is limited to the invention described in the claims of the patent, and that law does not empower the patent owner by notices attached to the things patented to extend the scope of the patent monopoly by restricting their use to materials necessary for their operation but forming no part of the patented invention, or to send such articles forth into the channels of trade subject to conditions as to use or royalty, to be imposed thereafter, in the vendor's discretion. *The Button-Fastener Case*, 77 Fed. Rep. 288, and *Henry v. Dick Company*, 224 U. S. 1, overruled. In determining how far the owner of a patent may restrict the use after sale of machines embodying the invention, weight must be given to the rules long established that the scope of every patent is limited to the invention as described in the claims, read in the light of the specification, that the patentee receives nothing from the patent law beyond the right to restrain others from manufacturing, using or selling his invention, and that the primary purpose of that law is not to create private fortunes but is to promote the progress of science and the useful arts.

The extent to which the use of a patented machine may validly be restricted to specific supplies or otherwise by special contract between the owner of the patent and a purchaser or licensee, is a question outside of the patent law and not involved in this case.

235 Fed. Rep. 398, affirmed.

THE case is stated in the opinion.

*Mr. Melville Church* for petitioner:

The restrictions on the right to use the machine were fully brought home to the Prague Amusement Company

and were binding. This is settled by *Henry v. Dick Co.*, 224 U. S. 1, and no doubt is cast upon that case by *Bauer v. O'Donnell*, 229 U. S. 1, which did not involve the right to impose restrictions on use.

In the present case there were two distinct restrictions: First, that the machine should be used only with motion pictures leased from a manufacturer licensed by the plaintiff; and second, that the machine could not be used at all without compliance with terms previously fixed by the plaintiff. The first restriction is not repugnant to the Clayton Act of October 15, 1914, § 3, 38 Stat. 730; but even if it were, the lawfulness of the second restriction, which the Prague Company admittedly violated if it had notice, would not be affected. *Oregon R. & U. Co. v. Windsor*, 20 Wall. 64-72; *U. S. &c. Co. v. Griffen*, 126 Fed. Rep. 364-370. The two are independent and severable and the latter will support the plaintiff's right to exact a license agreement providing for a continuing royalty, which it might lawfully reserve and rely upon. *St. Paul Plow Works v. Sparkling*, 140 U. S. 184. The \$5.00 received from the licensed manufacturer was but a paltry  $3\frac{1}{2}$  per cent. of the selling price, and utterly inadequate. The nameplate gave notice of the facts in relation to patent ownership and that restrictions were placed by the plaintiff upon the use. The Prague Company was under a duty to inquire of the Precision Machine Company the terms of the license under which the machine was put out, or to make like inquiry of the plaintiff. Inquiry of the former would have shown that the Precision Company was inhibited from selling except for use "upon other terms" to be fixed by the licensor and relating to the payment of royalty. The same information would have been obtained by inquiry of plaintiff. Either line of inquiry, properly followed up (*Shauer v. Allerton*, 151 U. S. 607-622; *Wood v. Carpenter*, 101 U. S. 135-141), would have revealed the details of these "other terms" and resulted in the fixing of a royalty

for use, to be paid only during use—a most reasonable arrangement.

Having failed to arrange for terms of royalty with the petitioner, the Prague Amusement Company never had a license to use and was and is, therefore, an infringer while using.

The distinction between the property rights conferred by patent and property rights in the machine, must be borne clearly in mind. The former are incorporeal, the latter corporeal, personal property. *De La Vergne Machine Co. v. Featherstone*, 147 U. S. 209-222. Under the patent laws, R. S. § 4898, the incorporeal rights are susceptible of infinite subdivision without impairment. Besides assignments and grants, the separate substantive, exclusive privileges of making, using, and selling may be parceled out by licenses with a wide variety of choice and combination as to time, place, method. Any such license may be granted for a lump sum or upon agreement for a continuing royalty. The patent owner can neither be required to make, use, or sell, nor to license others to do so. *Paper Bag Patent Case*, 210 U. S. 405, 425, 429. Upon a sale of the thing patented there is a transfer of the property in the thing itself but of only so much of the incorporeal patent rights as the owner chooses to relinquish. A sale outright without restriction passes both kinds of rights absolutely, but if, when selling, the patent owner restricts the purchaser's enjoyment of the incorporeal right of use conferred by the patent, any use by the purchaser beyond what is specifically authorized is an infringement upon the patent owner's reserved rights and may be restrained by the courts.

In the present case the machine proclaimed through the notice upon it that the right to use was restricted, and notified the purchaser to go to the plaintiff and make terms for the use, else it would be unlawful.

It is no objection that the notice itself did not state

the terms. Plainly and unmistakably it showed that the machine was not free but under the domination of the named patent owner who must be applied to. If the notice had been followed up, a reasonable royalty contract would have undoubtedly resulted. In ignoring the notice out of a desire to escape any royalty, the purchaser took its chances of being stopped for infringement.

There is no question but that plaintiff's remedy is on the patent for the tort. There was no contract. Respondent, having deliberately refused to make one, is estopped to claim a contract or that the plaintiff has mistaken its remedy.

The liability of the other respondents is that of contributory infringers who knowingly coöperated in carrying on an unlicensed use. All the respondents are jointly and severally liable in tort. *Lovejoy v. Murray*, 3 Wall. 1-11; *Walker on Patents*, 4th ed., § 406, p. 343.

The patent in suit is valid. Plaintiff is not estopped, as claimed, by proceedings in the Patent Office.

*Mr. Oscar W. Jeffery*, with whom *Mr. Edmund Wetmore* and *Mr. John B. Stanchfield* were on the brief, for respondents.

MR. JUSTICE CLARKE delivered the opinion of the court.

In this suit relief is sought against three defendant corporations as joint infringers of claim number seven of United States letters patent No. 707,934 granted to Woodville Latham, assignor, on August 26, 1902, for improvements in Projecting-Kinetoscopes. It is sufficient description of the patent to say that it covers a part of the mechanism used in motion picture exhibiting machines for feeding a film through the machine with a regular, uniform and accurate movement and so as not to expose the film to excessive strain or wear.

The defendants in a joint answer do not dispute the title

of the plaintiff to the patent but they deny the validity of it, deny infringement, and claim an implied license to use the patented machine.

Evidence which is undisputed shows that the plaintiff on June 20, 1912, in a paper styled "License Agreement" granted to The Precision Machine Company a right and license to manufacture and sell machines embodying the inventions described and claimed in the patent in suit, and in other patents, throughout the United States, its territories and possessions. This agreement contains a covenant on the part of the grantee that every machine sold by it, except those for export, shall be sold "under the restriction and condition that such exhibiting or projecting machines shall be used solely for exhibiting or projecting motion pictures containing the inventions of reissued letters patent No. 12,192, *leased by a licensee of the licensor while it owns said patents, and upon other terms to be fixed by the licensor and complied with by the user while the said machine is in use and while the licensor owns said patents* (which other terms shall only be the payment of a royalty or rental to the licensor while in use)."

The grantee further covenants and agrees that to each machine sold by it, except for export, it will attach a plate showing plainly not only the dates of the letters patent under which the machine is "licensed," but also the following words and figures:

"Serial No.———.

"Patented

No.

"The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the invention of reissued patent No. 12,192, leased by a licensee of the Motion Picture Patents Company, the owner of the above patents and reissued patent, while it owns said patents, and upon other terms to be fixed by the Motion Picture Patents Company and complied with by the user while it is in use and while the Motion Picture

Patents Company owns said patents. The removal or defacement of this plate terminates the right to use this machine."

The agreement further provides that the grantee shall not sell any machine at less than the plaintiff's list price, except to jobbers and others for purposes of resale and that it will require such jobbers and others to sell at not less than plaintiff's list price. The price fixed in the license contract for sale of machines after May 1st, 1909, is not less than \$150 for each machine and the licensee agrees to pay a royalty of \$5 on some machines and a percentage of the selling price on others.

It is admitted that the machine, the use of which is charged to be an infringement of the patent in suit, was manufactured by The Precision Machine Company and was sold and delivered under its "License Agreement" to the Seventy-second Street Amusement Company, then operating a playhouse on Seventy-second Street, in New York, and that when sold it was fully paid for and had attached to it a plate with the inscription which we have quoted as required by the agreement.

Reissued patent 12,192, referred to in the notice attached to the machine, expired on August 31, 1914. The defendant Prague Amusement Company on November 2, 1914, leased the Seventy-second Street playhouse from the Seventy-second Street Amusement Company, and acquired the alleged infringing machine as a part of the equipment of the leased playhouse. Subsequent to the expiration of reissued patent 12,192 the defendant, Universal Film Manufacturing Company, made two films or reels, which, between March 4th and 17th, 1915, were sold to the defendant the Universal Film Exchange and on March 17, 1915, were supplied to the defendant Prague Amusement Company for use on the machine, acquired as we have stated, and were used upon it at the Seventy-second Street playhouse on March 18th, 1915.

On January 18, 1915, the plaintiff sent a letter to the Seventy-second Street Amusement Company, notifying it in general terms that it was using without a license a machine embodying the invention of patent No. 707,934 and warning it that such use constituted an infringement of the patent, and on the same day the plaintiff addressed a letter to the defendant Universal Film Exchange notifying it that it also was infringing the same patents by supplying films for use upon the machine of the Seventy-second Street playhouse and elsewhere. The bill in this case was filed on March 18, 1915.

The District Court held that the limitation on the use of the machine attempted to be made by the notice attached to it, after it had been sold and paid for, was invalid, and that the Seventy-second Street Amusement Company, the purchaser, and its lessee, the Prague Amusement Company, had an implied license to use the machine as it had been used, and it dismissed the bill without passing on the question raised in the pleadings as to the validity of the patent. The Circuit Court of Appeals affirmed the District Court (235 Fed. Rep. 398) and the case is here for review on certiorari.

It was admitted at the bar that 40,000 of the plaintiff's machines are now in use in this country and that the mechanism covered by the patent in suit is the only one with which motion picture films can be used successfully.

This state of facts presents two questions for decision:

First. May a patentee or his assignee license another to manufacture and sell a patented machine and by a mere notice attached to it limit its use by the purchaser or by the purchaser's lessee, to films which are no part of the patented machine, and which are not patented?

Second. May the assignee of a patent, which has licensed another to make and sell the machine covered by it, by a mere notice attached to such machine, limit the

use of it by the purchaser or by the purchaser's lessee to terms not stated in the notice but which are to be fixed, after sale, by such assignee in its discretion?

It is obvious that in this case we have presented anew the inquiry, which is arising with increasing frequency in recent years, as to the extent to which a patentee or his assignee is authorized by our patent laws to prescribe by notice attached to a patented machine the conditions of its use and the supplies which must be used in the operation of it, under pain of infringement of the patent.

The statutes relating to patents do not provide for any such notice and it can derive no aid from them. Revised Statutes, § 4900, requiring that patented articles shall be marked with the word "Patented" affects only the damages recoverable for infringement, *Dunlap v. Schofield*, 152 U. S. 244, and Rev. Stats., § 4901, protects by its penalties the inventor, but neither one contemplates the use of such a "License Notice" as we have here and whatever validity it has must be derived from the general and not from the patent law.

The extent to which the use of the patented machine may validly be restricted to specific supplies or otherwise by special contract between the owner of a patent and the purchaser or licensee is a question outside the patent law and with it we are not here concerned. *Keeler v. Standard Folding Bed Co.*, 157 U. S. 659.

The inquiry presented by this record, as we have stated it, is important and fundamental, and it requires that we shall determine the meaning of Congress when in Rev. Stats., § 4884, it provided that "Every patent shall contain . . . a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the invention or discovery throughout the United States, and the Territories thereof." We are concerned only with the right to "use," authorized to be granted by this statute, for it is under warrant of this

right only that the plaintiff can and does claim validity for its warning notice.

The words used in the statute are few, simple and familiar, they have not been changed substantially since they were first used in the Act of 1790, c. 7, 1 Stat. 109; *Bauer v. O'Donnell*, 229 U. S. 1, 9, and their meaning would seem not to be doubtful if we can avoid reading into them that which they really do not contain.

In interpreting this language of the statute it will be of service to keep in mind three rules long established by this court, applicable to the patent law and to the construction of patents, viz:

1st. The scope of every patent is limited to the invention described in the claims contained in it, read in the light of the specification. These so mark where the progress claimed by the patent begins and where it ends that they have been aptly likened to the description in a deed, which sets the bounds to the grant which it contains. It is to the claims of every patent, therefore, that we must turn when we are seeking to determine what the invention is, the exclusive use of which is given to the inventor by the grant provided for by the statute,—“He can claim nothing beyond them.” *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U. S. 274; *Railroad Co. v. Mellon*, 104 U. S. 112, 118; *Yale Lock Mfg. Co. v. Greenleaf*, 117 U. S. 554, 559; *McClain v. Ortmyer*, 141 U. S. 419, 424.

2nd. It has long been settled that the patentee receives nothing from the law which he did not have before, and that the only effect of his patent is to restrain others from manufacturing, using or selling that which he has invented. The patent law simply protects him in the monopoly of that which he has invented and has described in the claims of his patent. *United States v. American Bell Telephone Co.*, 167 U. S. 224, 239; *Paper Bag Patent Case*, 210 U. S. 405, 424; *Bauer v. O'Donnell*, 229 U. S. 1, 10.

3rd. Since *Pennock v. Dialogue*, 2 Pet. 1, was decided in

1829 this court has consistently held that the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents but is "to promote the progress of science and useful arts" (Constitution, Art. I, § 8), an object and purpose authoritatively expressed by Mr. Justice Story, in that decision, saying:

"While one great object [of our patent laws] was, by holding out a reasonable reward to inventors, and giving them an exclusive right to their inventions for a limited period, to stimulate the efforts of genius; the main object was 'to promote the progress of science and useful arts.'"

Thirty years later this court, returning to the subject, in *Kendall v. Winsor*, 21 How. 322, again pointedly and significantly says:

"It is undeniably true, that the limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage; the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly."

This court has never modified this statement of the relative importance of the public and private interests involved in every grant of a patent, even while declaring that in the construction of patents and the patent laws, inventors shall be fairly, even liberally, treated. *Grant v. Raymond*, 6 Pet. 218, 241; *Winans v. Denmead*, 15 How. 330; *Walker on Patents*, § 185.

These rules of law make it very clear that the scope of the grant which may be made to an inventor in a patent, pursuant to the statute, must be limited to the invention described in the claims of his patent (104 U. S. 118, *supra*) and to determine what grant may lawfully be so made we must hold fast to the language of the act of Congress providing for it, which is found in two sections of the Revised Statutes. Section 4886 provides that "Any person who has invented or discovered any new and useful art, ma-

chine, manufacture or composition of matter, or any new and useful improvement thereof, . . . may . . . obtain a patent therefor"; and § 4884 provides that such patent when obtained "shall contain . . . a grant to the patentee, his heirs or assigns . . . of the exclusive right to . . . use . . . the invention or discovery."

Thus the inventor may apply for, and, if he meets the required conditions, may obtain, a patent for the new and useful invention which he has discovered, which patent shall contain a grant of the right to the exclusive use of his discovery.

Plainly, this language of the statute and the established rules to which we have referred restrict the patent granted on a machine, such as we have in this case, to the mechanism described in the patent as necessary to produce the described results. It is not concerned with and has nothing to do with the materials with which or on which the machine operates. The grant is of the exclusive right to use the mechanism to produce the result with any appropriate material, and the materials with which the machine is operated are no part of the patented machine or of the combination which produces the patented result. The difference is clear and vital between the exclusive right to use the machine which the law gives to the inventor and the right to use it exclusively with prescribed materials to which such a license notice as we have here seeks to restrict it. The restrictions of the law relate to the useful and novel features of the machine which are described in the claims of the patent, they have nothing to do with the materials used in the operation of the machine; while the notice restrictions have nothing to do with the invention which is patented but relate wholly to the materials to be used with it. Both in form and in substance the notice attempts a restriction upon the use of the supplies only and it cannot with any regard to pro-

priety in the use of language be termed a restriction upon the use of the machine itself.

Whatever right the owner may have to control by restriction the materials to be used in operating the machine must be derived through the general law from the ownership of the property in the machine and it cannot be derived from or protected by the patent law, which allows a grant only of the right to an exclusive use of the new and useful discovery which has been made—this and nothing more.

This construction gives to the inventor the exclusive use of just what his inventive genius has discovered. It is all that the statute provides shall be given to him and it is all that he should receive, for it is the fair as well as the statutory measure of his reward for his contribution to the public stock of knowledge. If his discovery is an important one his reward under such a construction of the law will be large, as experience has abundantly proved, and if it be unimportant he should not be permitted by legal devices to impose an unjust charge upon the public in return for the use of it. For more than a century this plain meaning of the statute was accepted as its technical meaning, and that it afforded ample incentive to exertion by inventive genius is proved by the fact that under it the greatest inventions of our time, teeming with inventions, were made. It would serve no good purpose to amplify by argument or illustration this plain meaning of the statute. It is so plain that to argue it would obscure it.

It was not until the time came in which the full possibilities seem first to have been appreciated of uniting, in one, many branches of business through corporate organization and of gathering great profits in small payments, which are not realized or resented, from many, rather than smaller or even equal profits in larger payments, which are felt and may be refused, from a few, that it came to be thought that the "right to use . . . the invention"

of a patent gave to the patentee or his assigns the right to restrict the use of it to materials or supplies not described in the patent and not by its terms made a part of the thing patented.

The construction of the patent law which justifies as valid the restriction of patented machines, by notice, to use with unpatented supplies necessary in the operation of them, but which are no part of them, is believed to have originated in *Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.*, 77 Fed. Rep. 288 (which has come to be widely referred to as the *Button-Fastener Case*), decided by the Circuit Court of Appeals of the Sixth Circuit in 1896. In this case the court, recognizing the pioneer character of the decision it was rendering, speaks of the "novel restrictions" which it is considering and says that it is called upon "to mark another boundary line around the patentee's monopoly, which will *debar him from engrossing the market for an article not the subject of a patent*," which it declined to do.

This decision proceeds upon the argument that, since the patentee may withhold his patent altogether from public use he must logically and necessarily be permitted to impose any conditions which he chooses upon any use which he may allow of it. The defect in this thinking springs from the substituting of inference and argument for the language of the statute and from failure to distinguish between the rights which are given to the inventor by the patent law and which he may assert against all the world through an infringement proceeding and rights which he may create for himself by private contract which, however, are subject to the rules of general as distinguished from those of the patent law. While it is true that under the statutes as they were (and now are) a patentee might withhold his patented machine from public use, yet if he consented to use it himself or through others, such use immediately fell within the terms of the

statute and as we have seen he is thereby restricted to the use of the invention as it is described in the claims of his patent and not as it may be expanded by limitations as to materials and supplies necessary to the operation of it imposed by mere notice to the public.

The high standing of the court rendering this decision and the obvious possibilities for gain in the method which it approved led to an immediate and widespread adoption of the system, in which these restrictions expanded into more and more comprehensive forms until at length the case at bar is reached, with a machine sold and paid for yet claimed still to be subject not only to restriction as to supplies to be used but also subject to any restrictions or conditions as to use or royalty which the company which authorized its sale may see fit, after the sale, from time to time to impose. The perfect instrument of favoritism and oppression which such a system of doing business, if valid, would put into the control of the owner of such a patent should make courts astute, if need be, to defeat its operation. If these restrictions were sustained plainly the plaintiff might, for its own profit or that of its favorites, by the obviously simple expedient of varying its royalty charge, ruin anyone unfortunate enough to be dependent upon its confessedly important improvements for the doing of business.

Through the twenty years since the decision in the *Button-Fastener Case* was announced there have not been wanting courts and judges who have dissented from its conclusions, as is sufficiently shown in the division of this court when the question involved first came before it in *Henry v. Dick Co.*, 224 U. S. 1, and in the disposition shown not to extend the doctrine in *Bauer v. O'Donnell*, 229 U. S. 1.

The exclusive right to "vend" a patented article is derived from the same clause of the section of the statute which gives the exclusive right to "use" such an article

and following the decision of the *Button-Fastener Case*, it was widely contended as obviously sound, that the right existed in the owner of a patent to fix a price at which the patented article might be sold and resold under penalty of patent infringement. But this court, when the question came before it in *Bauer v. O'Donnell*, 229 U. S. 1, rejecting plausible argument and adhering to the language of the statute from which all patent right is derived, refused to give such a construction to the act of Congress, and decided that the owner of a patent is not authorized by either the letter or the purpose of the law to fix, by notice, the price at which a patented article must be sold after the first sale of it, declaring that the right to vend is exhausted by a single, unconditional sale, the article sold being thereby carried outside the monopoly of the patent law and rendered free of every restriction which the vendor may attempt to put upon it. The statutory authority to grant the exclusive right to "use" a patented machine is not greater, indeed it is precisely the same, as the authority to grant the exclusive right to "vend," and, looking to that authority, for the reasons stated in this opinion we are convinced that the exclusive right granted in every patent must be limited to the invention described in the claims of the patent and that it is not competent for the owner of a patent by notice attached to its machine to, in effect, extend the scope of its patent monopoly by restricting the use of it to materials necessary in its operation but which are no part of the patented invention, or to send its machines forth into the channels of trade of the country subject to conditions as to use or royalty to be paid to be imposed thereafter at the discretion of such patent owner. The patent law furnishes no warrant for such a practice and the cost, inconvenience and annoyance to the public which the opposite conclusion would occasion forbid it.

It is argued as a merit of this system of sale under a

license notice that the public is benefited by the sale of the machine at what is practically its cost and by the fact that the owner of the patent makes its entire profit from the sale of the supplies with which it is operated. This fact, if it be a fact, instead of commending, is the clearest possible condemnation of, the practice adopted, for it proves that under color of its patent the owner intends to and does derive its profit, not from the invention on which the law gives it a monopoly but from the unpatented supplies with which it is used and which are wholly without the scope of the patent monopoly, thus in effect extending the power to the owner of the patent to fix the price to the public of the unpatented supplies as effectively as he may fix the price on the patented machine.

We are confirmed in the conclusion which we are announcing by the fact that since the decision of *Henry v. Dick Co.*, 224 U. S. 1, the Congress of the United States, the source of all rights under patents, as if in response to that decision, has enacted a law making it unlawful for any person engaged in interstate commerce "to lease or make a sale or contract for sale of goods . . . machinery, supplies or other commodities, *whether patented or unpatented*, for use, consumption or resale . . . or fix a price charged therefor . . . on the condition, agreement or understanding that the lessee or purchaser thereof shall not use . . . the goods . . . machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce." 38 Stat. 730.

Our conclusion renders it unnecessary to make the application of this statute to the case at bar which the Circuit Court of Appeals made of it but it must be accepted by us as a most persuasive expression of the public

policy of our country with respect to the question before us.

It is obvious that the conclusions arrived at in this opinion are such that the decision in *Henry v. Dick Co.*, 224 U. S. 1, must be regarded as overruled.

Coming now to the terms of the notice attached to the machine sold to the Seventy-second Street Amusement Company under the license of the plaintiff and to the first question as we have stated it.

This notice first provides that the machine, which was sold to and paid for by the Amusement Company may be used only with moving picture films containing the invention of reissued patent No. 12,192, so long as the plaintiff continues to own this reissued patent.

Such a restriction is invalid because such a film is obviously not any part of the invention of the patent in suit; because it is an attempt, without statutory warrant, to continue the patent monopoly in this particular character of film after it has expired, and because to enforce it would be to create a monopoly in the manufacture and use of moving picture films, wholly outside of the patent in suit and of the patent law as we have interpreted it.

The notice further provides that the machine shall be used only upon other terms (than those stated in the notice) to be fixed by the plaintiff, while it is in use and while the plaintiff "owns said patents." And it is stated at the bar that under this warrant a charge was imposed upon the purchaser graduated by the size of the theater in which the machine was to be used.

Assuming that the plaintiff has been paid an average royalty of \$5 on each machine sold, prescribed in the license agreement, it has already received over \$200,000 for the use of its patented improvement, which relates only to the method of using the films which another had invented, and yet it seeks by this device to collect during the life of the patent in suit what would doubtless aggre-

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gate many times this amount for the use of this same invention, after its machines have been sold and paid for.

A restriction which would give to the plaintiff such a potential power for evil over an industry which must be recognized as an important element in the amusement life of the nation, under the conclusions we have stated in this opinion, is plainly void, because wholly without the scope and purpose of our patent laws and because, if sustained, it would be gravely injurious to that public interest, which we have seen is more a favorite of the law than is the promotion of private fortunes.

Both questions as stated must be answered in the negative and the decree of the Circuit Court of Appeals is

*Affirmed.*

MR. JUSTICE McREYNOLDS concurs in the result.

MR. JUSTICE HOLMES, dissenting.

I suppose that a patentee has no less property in his patented machine than any other owner, and that in addition to keeping the machine to himself the patent gives him the further right to forbid the rest of the world from making others like it. In short, for whatever motive, he may keep his device wholly out of use. *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U. S. 405, 422. So much being undisputed, I cannot understand why he may not keep it out of use unless the licensee, or, for the matter of that, the buyer, will use some unpatented thing in connection with it. Generally speaking the measure of a condition is the consequence of a breach, and if that consequence is one that the owner may impose unconditionally, he may impose it conditionally upon a certain event. *Ashley v. Ryan*, 153 U. S. 436, 443. *Lloyd v. Dollison*, 194 U. S. 445, 449. *Non debet, cui plus licet, quod minus est non licere*. D. 50, 17, 21.

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No doubt this principle might be limited or excluded in cases where the condition tends to bring about a state of things that there is a predominant public interest to prevent. But there is no predominant public interest to prevent a patented tea pot or film feeder from being kept from the public, because, as I have said, the patentee may keep them tied up at will while his patent lasts. Neither is there any such interest to prevent the purchase of the tea or films, that is made the condition of the use of the machine. The supposed contravention of public interest sometimes is stated as an attempt to extend the patent law to unpatented articles, which of course it is not, and more accurately as a possible domination to be established by such means. But the domination is one only to the extent of the desire for the tea pot or film feeder, and if the owner prefers to keep the pot or the feeder unless you will buy his tea or films, I cannot see in allowing him the right to do so anything more than an ordinary incident of ownership, or at most, a consequence of the *Paper Bag Case*, on which, as it seems to me, this case ought to turn. See *Grant v. Raymond*, 6 Pet. 218, 242.

Not only do I believe that the rule that I advocate is right under the *Paper Bag Case*, but I think that it has become a rule of property that law and justice require to be retained. For fifteen years, at least since *Bement v. National Harrow Co.*, 186 U. S. 70, 88-93, if not considerably earlier, the public has been encouraged by this court to believe that the law is as it was laid down in *Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co.*, 77 Fed. Rep. 288, 25 C. C. A. 267, and numerous other decisions of the lower courts. I believe that many and important transactions have taken place on the faith of those decisions, and that for that reason as well as for the first that I have given, the rule last announced in *Henry v. Dick Co.*, 224 U. S. 1, should be maintained.

I will add for its bearing upon *Straus v. Victor Talking*

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Syllabus.

*Machine Co.*, ante, 490, that a conditional sale retaining the title until a future event after delivery, has been decided to be lawful again and again by this court. *Bailey v. Baker Ice Machine Co.*, 239 U. S. 268, 272. I confine myself to expressing my views upon the general and important questions upon which I have the misfortune to differ from the majority of the court. I leave on one side the question of the effect of the Clayton Act, as the court has done, and also what I might think if the *Paper Bag Case* were not upheld, or if the question were upon the effect of a combination of patents such as to be contrary to the policy that I am bound to accept from the Congress of the United States.

MR. JUSTICE MCKENNA and MR. JUSTICE VAN DE-  
VANTER concur in this dissent.

**END  
OF  
CASE**